

## Safety Data Sheet

# 10 Mix polybrominated diphenyl ethers in toluene

Version : V2.0.0.1

Report No. : BWQ0384-2016 -MSDS-EP

Creation Date : 2026/01/17

Revision Date : -



**\*Prepared in accordance with EU REACH Regulation (REACH 1907/2006 with amendment 2020/878)**

## 1 Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Product Name	10 Mix polybrominated diphenyl ethers in toluene
Cat No.	BWQ0384-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable
REACH Registration Number	-
UFI	No information available

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

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

### 1.3 Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

### 1.4 Emergency telephone number

Emergency telephone number	010-58103678
Opening hours	24h

## 2 Hazards identification

### 2.1 CLP classification according to Regulation ( EC ) No. 1272/2008 with amendment 2023/707

Flammable liquids	Category 2
Aspiration hazard	Category 1
Skin Corrosion/Irritation	Category 2
Specific target organ toxicity - single exposure; narcotic effects	Category 3

Reproductive toxicity	Category 2
Specific target organ toxicity - repeated exposure	Category 2

## 2.2 Label elements

Hazard pictograms	
Signal word	<b>Danger</b>

## Hazard statements

H225	Highly flammable liquid and vapour
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H336	May cause drowsiness or dizziness
H361d	Suspected of damaging the unborn child
H373	May cause damage to organs through prolonged or repeated exposure

## Precautionary statements

### ◆ Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe gas/mist/vapour/spray.
P264	Wash hands and other parts of the body (if related) thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

### ◆ Response

P312	Call a POISON CENTRE/ doctor/... if you feel unwell.
P314	Get medical advice/ attention if you feel unwell.
P321	Specific treatment (see related instructions on the label).
P331	Do NOT induce vomiting.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

<b>P370+P378</b>	Small fire: dry chemical, CO <sub>2</sub> or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
<b>P303+P361+P353</b>	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

◆ Storage

<b>P405</b>	Store locked up.
<b>P403+P233</b>	Store in a well-ventilated place. Keep container tightly closed.
<b>P403+P235</b>	Store in a well-ventilated place. Keep cool.

◆ Disposal

<b>P501</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
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## 2.3 Other hazards

◆ Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
4-bromodiphenyl ether	Insufficient information, temporarily unable to evaluate
Bis(4-bromophenyl) ether	Insufficient information, temporarily unable to evaluate
2,4-Dibromo-1-(4-bromophenoxy)benzene;	Insufficient information, temporarily unable to evaluate
2,2',4,4'-Tetrabromodiphenyl ether	Insufficient information, temporarily unable to evaluate
2,2',4,4',6-Pentabromodiphenyl ether	Insufficient information, temporarily unable to evaluate
2,2',4,4',5,6-HEXABROMODIPHENYL ETHER	Insufficient information, temporarily unable to evaluate
2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER	Insufficient information, temporarily unable to evaluate
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	Insufficient information, temporarily unable to evaluate
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	Insufficient information, temporarily unable to evaluate
Bis(pentabromophenyl) ether	PBT/vPvB
Toluene	Not PBT/vPvB

◆ Results of endocrine disrupting properties assessment

Component	Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605]
4-bromodiphenyl ether	Insufficient information, temporarily unable to evaluate
Bis(4-bromophenyl) ether	Insufficient information, temporarily unable to evaluate
2,4-Dibromo-1-(4-bromophenoxy)benzene;	Insufficient information, temporarily unable to evaluate
2,2',4,4'-Tetrabromodiphenyl ether	Insufficient information, temporarily unable to evaluate

<b>2,2',4,4',6-Pentabromodiphenyl ether</b>	Insufficient information, temporarily unable to evaluate
<b>2,2',4,4',5,6'-HEXABROMO DIPHENYL ETHER</b>	Insufficient information, temporarily unable to evaluate
<b>2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER</b>	Insufficient information, temporarily unable to evaluate
<b>2,2',3,4,4',5,5',6-Octabromodiphenyl ether</b>	Insufficient information, temporarily unable to evaluate
<b>2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether</b>	Insufficient information, temporarily unable to evaluate
<b>Bis(pentabromophenyl) ether</b>	Insufficient information, temporarily unable to evaluate
<b>Toluene</b>	Insufficient information, temporarily unable to evaluate

◆ Other

Not applicable.

### 3 Composition/information on ingredients

#### 3.1 Substance

Not applicable

#### 3.2 Mixture

Component	Weight % content(or range)	Classification according to Regulation ( EC ) No. 1272/2008 with amendment 2023/707 [CLP]	Specific Conc. Limits, M-factors
<b>4-bromodiphenyl ether</b> CAS : 101-55-3 EC : 202-952-4 Index No. : -	0.0115	Not Classified	-
<b>Bis(4-bromophenyl) ether</b> CAS : 2050-47-7 EC : 218-090-7 Index No. : -	0.0115	Acute Toxicity - Oral, Category 4, H302; Skin Corrosion/Irritation, Category 2, H315; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>2,4-Dibromo-1-(4-bromophenoxy)benzene;</b> CAS : 41318-75-6 EC : 868-402-6 Index No. : -	0.0115	Acute Toxicity - Oral, Category 4, H302; Skin Corrosion/Irritation, Category 2, H315; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>2,2',4,4'-Tetrabromodiphenyl ether</b> CAS : 5436-43-1 EC : - Index No. : -	0.0115	Not Classified	-
<b>2,2',4,4',6-Pentabromodiphenyl ether</b> CAS : 189084-64-8 EC : - Index No. : -	0.0115	Not Classified	-
<b>2,2',4,4',5,6'-HEXABROMODIPHENYL ETHER</b> CAS : 207122-15-4 EC : 208-759-1 Index No. : 601-009-00-8	0.0115	Flammable liquids, Category 2, H225; Aspiration hazard, Category 1, H304; Skin Corrosion/Irritation, Category 2, H315; Specific target organ toxicity - single exposure; narcotic effects, Category 3,	-

		H336; Hazardous to the aquatic environment - short-term (acute) hazard, Category 1, H400; Hazardous to the aquatic environment - long-term (chronic) hazard, Category 1, H410	
<b>2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER</b> CAS : 207122-16-5 EC : 208-759-1 Index No. : 601-009-00-8	0.0115	Flammable liquids, Category 2, H225; Aspiration hazard, Category 1, H304; Skin Corrosion/Irritation, Category 2, H315; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Hazardous to the aquatic environment - short-term (acute) hazard, Category 1, H400; Hazardous to the aquatic environment - long-term (chronic) hazard, Category 1, H410	-
<b>2,2',3,4,4',5,5',6-Octabromodiphenyl ether</b> CAS : 337513-72-1 EC : - Index No. : -	0.0115	Reproductive toxicity, Category 1A, H360; Specific target organ toxicity - repeated exposure, Category 2, H373; Hazardous to the aquatic environment - long-term (chronic) hazard, Category 1, H410	-
<b>2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether</b> CAS : 63387-28-0 EC : - Index No. : -	0.0115	No information available	-
<b>Bis(pentabromophenyl) ether</b> CAS : 1163-19-5 EC : 214-604-9 Index No. : -	0.0115	Not Classified	-
<b>Toluene</b> CAS : 108-88-3 EC : 203-625-9 Index No. : 601-021-00-3	99.885	Flammable liquids, Category 2, H225; Aspiration hazard, Category 1, H304; Skin Corrosion/Irritation, Category 2, H315; Specific target organ toxicity - single exposure; narcotic effects, Category 3, H336; Reproductive toxicity, Category 2, H361; Specific target organ toxicity - repeated exposure, Category 2, H373	-

## 4 First-aid measures

### 4.1 Description of first aid measures

<b>General advice</b>	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
<b>Eye contact</b>	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
<b>Skin contact</b>	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
<b>Ingestion</b>	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.
<b>Inhalation</b>	Fresh air, rest. Refer for medical attention.
<b>Protecting of first-aiders</b>	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

### 4.2 Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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### 4.3 Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

## 5 Fire-fighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	Small fire: dry chemical, CO <sub>2</sub> or alcohol-resistant foam; Large fire: alcohol-resistant foam; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out.
<b>Unsuitable extinguishing media</b>	Use of water spray when fighting fire may be inefficient.

### 5.2 Specific hazards arising from the substance or mixture

1	Will form explosive mixtures with air.
2	Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/or vapour concentration.
3	Vapours may travel to source of ignition and flash back.
4	Liquid and vapour are flammable.
5	Development of hazardous combustion gases or vapor possible in the event of fire.
6	May expand or decompose explosively when heated or involved in fire.

### 5.3 Advice for firefighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 6 Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

1	Avoid breathing vapours and contacting with skin and eye.
2	Beware of vapours accumulating to form explosive concentrations.
3	Vapours can accumulate in low areas.
4	Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
5	Use personal protective equipment, do not breathe gas/mist/vapour/spray.
6	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
7	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### 6.2 Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

1	It is recommended that emergency personnel wear positive pressure self-contained breathing apparatus and wear anti-static clothing.
2	In case of small amount of spillage, use clean non sparking tools to collect absorption materials.
3	In case of large amount of spillage, construct cofferdam or dig a hole to collect the spillage. Use foam cover to

	reduce evaporation. Water spray mist can reduce evaporation, but can not reduce the flammability of the leakage in the restricted space.
4	Collect absorbent material using a clean, non-sparking tool.
5	Cover with anti-solvent foam to reduce evaporation.
6	Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
7	Water spray reduces evaporation but does not reduce the flammability of spills in confined spaces.
8	Cut off the source of the leak as much as possible.
9	Keep leaks in a ventilated place.
10	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
11	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
12	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.
13	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

#### 6.4 Reference to other sections

1	Personal Protective Equipment advice is contained in Section 8 of the SDS.
2	Disposal considerations advice is contained in Section 13 of the SDS.

## 7 Handling and storage

### 7.1 Precautions for safe handling

#### ◆ Protective measures

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.

#### ◆ Measures to prevent fire

1	Use only non-sparking tools.
2	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
3	Use explosion proof equipment.
4	Keep away from heat/sparks/open flames/ hot surfaces.

#### ◆ Measures to prevent aerosol and dust generation

1	Not applicable.
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#### ◆ Advice on general occupational hygiene

1	Wash hands and face after using the substances.
2	Replace the contaminated clothing immediately.

### 7.2 Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

### 7.3 Specific end use(s)

1	In addition to use mentioned in the Section 1.2, unforeseen other specific end uses.
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## 8 Exposure controls/personal protection

### 8.1 Control parameters

#### ◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
<b>2,2',3,4,4',5,5',6-Octabromodiphenyl ether</b>	Poland	-	0.1	-	-
<b>Toluene</b>	Japan - JSOH(2024-2025)	50	188	-	-
	Permissible exposure standards for workers in the workplace	50	188	75	235
	European Union	50	192	100	384
	France	20	76.8	100	384
	Germany (AGS)	50	190	100	380
	Germany (DFG)	50	190	100	380

#### ◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
<b>Toluene</b>	USA -ACGIH	o-Cresol, with hydrolysis(Creatinine in urine)	0.3mg/g	End of shift	
		Toluene(Urine)	0.03mg/L	End of shift	
		Toluene(Blood)	0.02mg/L	Prior to last shift of work week	

#### ◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 and GBZ/T 160 series standard Determination of toxic substances in workplace air.

#### ◆ Derived No effect level (DNEL)

Component	Route of exposure	DNEL for Workers			
		Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
<b>4-bromodiphenyl ether</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Bis(4-bromophenyl) ether</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>2,4-Dibromo-1-(4-bromophenoxy)benzene;</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available

	Dermal	No data available	No data available	No data available	No data available
<b>2,2',4,4'-Tetrabromodiphenyl ether</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>2,2',4,4',6-Pentabromodiphenyl ether</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>2,2',4,4',5,6'-HEXABROMODIPHENYL ETHER</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>2,2',3,4,4',5,5',6-Octabromodiphenyl ether</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Bis(pentabromophenyl) ether</b>	Inhalation	No data available	No data available	No data available	6 mg/m <sup>3</sup>
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Toluene</b>	Inhalation	No data available	No data available	192 mg/m <sup>3</sup>	192 mg/m <sup>3</sup>
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

◆ Predicted No Effect Concentration (PNEC)

Component	A	B	C	D	E	F	G	H
<b>Bis(pentabromophenyl) ether</b>	No data available	No data available	1.5 mg/L	384 mg/kg sediment dw	10 mg/kg sediment dw	No data available	98 mg/kg soil dw	222 mg/kg food
<b>Toluene</b>	74 - 680 µg/L	7.4 - 680 µg/L	840 - 13610 µg/L	1.78 - 16.39 mg/kg sediment dw	178 - 16390 µg/kg sediment dw	No hazard identified	313 - 2890 µg/kg soil dw	No potential for bioaccumulation

**Note 1:**

A: Freshwater; B: Seawater; C: Sewage treatment plant; D: Sediment (freshwater); E: Sediment (seawater); F: Air; G: Soil; H: Secondary poisoning(Hazard for Predators).

**Note 2:**

The PNEC values of the remaining components not shown in the product are not available yet.

## 8.2 Exposure controls

### 8.2.1 Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

### 8.2.2 Personal protection equipment

General requirement	
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear anti static chemical protective gloves.
Respiratory protection	Must wear appropriate personal respiratory protective equipment.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

### 8.2.3 Environmental exposure controls

Environmental exposure controls	No information available
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## 9 Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	colorless liquid
Colour	colorless liquid
Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	-95 ( Toluene )
Initial boiling point and boiling range(°C)	111 ( Toluene )
Flash point(Closed cup, °C)	4 ( Toluene )
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[% (v/v)]	Upper limit : 7.1 ( Toluene ); Lower limit : 1.1 ( Toluene )
Vapor pressure	3.8kPa ( 25°C, Toluene )
Vapor density(Air = 1)	3.1 ( Toluene )
Relative density(Water=1)	0.87 ( Toluene )
Solubility	Insoluble in water ( Toluene )
n-octanol/water partition coefficient	2.69 ( Toluene )
Auto-ignition temperature(°C)	480 ( Toluene )
Decomposition temperature(°C)	No information available
Kinematic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available

Particle characteristics	Not applicable
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## 9.2 Other information

### 9.2.1 Information with regard to physical hazard classes

Information with regard to physical hazard classes	No information available
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### 9.2.2 Other safety characteristics

Other safety characteristics	No information available
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## 10 Stability and reactivity

### Stability and reactivity

10.1 Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
10.2 Chemical stability	Stable under proper operation and storage conditions.
10.3 Possibility of hazardous reactions	In contact with halides may cause an active reaction.
10.4 Conditions to avoid	Incompatible materials, heat, flame and spark.
10.5 Incompatible materials	Halides, oxidants and halogen.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 with amendment 2023/707

10 Mix polybrominated diphenyl ethers in toluene	
Skin corrosion/irritation	Causes skin irritation(Category 2)
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Suspected of damaging the unborn child(Category 2)
STOT-single exposure	May cause drowsiness or dizziness(Category 3)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure(Category 2)
Aspiration hazard	May be fatal if swallowed and enters airways(Category 1)
Germ cell mutagenicity	Based on available data, the classification criteria are not met

### Acute toxicity

Component	LD <sub>50</sub> (oral)	LD <sub>50</sub> (dermal)	LC <sub>50</sub> (inhalation,4h)
Toluene	636mg/kg(Rat)	12200mg/kg(Rabbit)	49mg/L(Rat)

### Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
4-bromodiphenyl ether	Not Listed	Not Listed
Bis(4-bromophenyl) ether	Not Listed	Not Listed

2,4-Dibromo-1-(4-bromophenoxy)benzene;	Not Listed	Not Listed
2,2',4,4'-Tetrabromodiphenyl ether	Not Listed	Not Listed
2,2',4,4',6-Pentabromodiphenyl ether	Not Listed	Not Listed
2,2',4,4',5,6'-HEXABROMO DIPHENYL ETHER	Not Listed	Not Listed
2,2',3,4,4',5,6'-HEPTABROMODIPHENYL ETHER	Not Listed	Not Listed
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	Not Listed	Not Listed
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	Not Listed	Not Listed
Bis(pentabromophenyl) ether	Category 3	Not Listed
Toluene	Category 3	Not Listed

## 11.2 Information on other hazards

### 11.2.1 Endocrine disrupting properties

Component	Endocrine disrupting properties
4-bromodiphenyl ether	No information available
Bis(4-bromophenyl) ether	No information available
2,4-Dibromo-1-(4-bromophenoxy)benzene;	No information available
2,2',4,4'-Tetrabromodiphenyl ether	No information available
2,2',4,4',6-Pentabromodiphenyl ether	No information available
2,2',4,4',5,6'-HEXABROMO DIPHENYL ETHER	No information available
2,2',3,4,4',5,6'-HEPTABROMODIPHENYL ETHER	No information available
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	No information available
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	No information available
Bis(pentabromophenyl) ether	No information available
Toluene	No information available

### 11.2.2 Other Information

Other Information	See Section 11.1
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## 12 Ecological information

### 12.1 Toxicity

**Acute aquatic toxicity**

Component	Fish	Crustaceans	Algae or other aquatic plants
<b>Bis(pentabromophenyl) ether</b>	LC <sub>50</sub> : >0.0046mg/L (96h)(Fish)	EC <sub>50</sub> : >0.0048mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : >0.0052mg/L (72h)(Algae)
<b>Toluene</b>	LC <sub>50</sub> : 25mg/L (96h)(Fish)	EC <sub>50</sub> : 4.1mg/L (48h)(Crustaceans)	ErC <sub>50</sub> : 29mg/L (72h)(Algae)
<b>4-bromodiphenyl ether</b>	LC <sub>50</sub> : 5.9mg/L (96h)(Fish)	No information available	No information available

**Chronic aquatic toxicity**

Component	Fish	Crustaceans	Algae or other aquatic plants
<b>Bis(pentabromophenyl) ether</b>	No information available	NOEC : >0.0051mg/L(Crustaceans)	NOEC : 0.0052mg/L(Algae)
<b>Toluene</b>	No information available	NOEC : 1.2mg/L(Crustaceans)	NOEC : 9.1mg/L(Algae)

**12.2 Persistence and degradability**

Component	Persistence (water/soil)	Persistence (air)
<b>Bis(pentabromophenyl) ether</b>	High(Half-life = 730 days)	Medium(Half-life = 153.58 days)

**12.3 Bioaccumulative potential**

Component	Bioaccumulative potential	Comments
<b>Bis(pentabromophenyl) ether</b>	Low	BCF=5

**12.4 Mobility in soil**

Component	log Koc	Remark
<b>2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER</b>	≥2.7 - ≤3.56	20 °C , pH=7.0
<b>2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER</b>	≥2.7 - ≤3.56	20 °C , pH=7.0
<b>Bis(pentabromophenyl) ether</b>	11.723	
<b>Toluene</b>	2.31	20 °C

**12.5 Results of PBT and vPvB assessment**

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
<b>4-bromodiphenyl ether</b>	Insufficient information, temporarily unable to evaluate
<b>Bis(4-bromophenyl) ether</b>	Insufficient information, temporarily unable to evaluate
<b>2,4-Dibromo-1-(4-bromophenoxy)benzene;</b>	Insufficient information, temporarily unable to evaluate
<b>2,2',4,4'-Tetrabromodiphenyl ether</b>	Insufficient information, temporarily unable to evaluate
	Insufficient information, temporarily unable to evaluate

2,2',4,4',6-Pentabromodiphenyl ether	
2,2',4,4',5,6'-HEXABROMO DIPHENYL ETHER	Insufficient information, temporarily unable to evaluate
2,2',3,4,4',5,6'-HEPTABROMODIPHENYL ETHER	Insufficient information, temporarily unable to evaluate
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	Insufficient information, temporarily unable to evaluate
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	Insufficient information, temporarily unable to evaluate
Bis(pentabromophenyl) ether	PBT/vPvB
Toluene	Not PBT/vPvB

## 12.6 Endocrine disrupting properties

Component	Endocrine disrupting properties
4-bromodiphenyl ether	No information available
Bis(4-bromophenyl) ether	No information available
2,4-Dibromo-1-(4-bromophenoxy)benzene;	No information available
2,2',4,4'-Tetrabromodiphenyl ether	No information available
2,2',4,4',6-Pentabromodiphenyl ether	No information available
2,2',4,4',5,6'-HEXABROMO DIPHENYL ETHER	No information available
2,2',3,4,4',5,6'-HEPTABROMODIPHENYL ETHER	No information available
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	No information available
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	No information available
Bis(pentabromophenyl) ether	No information available
Toluene	No information available

## 12.7 Other adverse effects

	No information available
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## 13 Disposal considerations

### 13.1 Waste treatment methods

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

## 14 Transport information

**Label and Mark**

Transporting Label	
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**IMDG-CODE**

14.1 UN number	1294
14.2 UN proper shipping name	TOLUENE
14.3 Transport hazard class	3
14.4 Packing group	II
14.5 Environmental hazards (Yes or no)	No

**IATA-DGR**

14.1 UN number	1294
14.2 UN proper shipping name	TOLUENE
14.3 Transport hazard class	3
14.4 Packing group	II
14.5 Environmental hazards (Yes or no)	No

**UN-ADR**

14.1 UN number	1294
14.2 UN proper shipping name	TOLUENE
14.3 Transport hazard class	3
14.4 Packing group	II
14.5 Environmental hazards (Yes or no)	No

**Special precautions for user**

	<p>Shipment of the goods vehicle exhaust pipe must be equipped with fire retardant devices, prohibit using mechanical equipment and tools of which easy to produce sparks. Transit should be anti-exposure, anti-rain, anti-high temperature. Transportation used tank (tank) cars should be grounded chain, tank can be installed to reduce the partition hole static electricity shocks. Strictly prohibited shipping or transportation with oxidants, acids, food and food additives etc. When bulk transport, Prohibit the use of cement or wooden boats. Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.</p>
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**Maritime transport in bulk according to IMO instruments**

◆ Transport in bulk according to Annex II of MARPOL and the IBC code	Not Available
◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code	Not Available

## ◆ Transport in bulk in accordance with the IGC Code

Not Available

**15** Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****International chemical inventory**

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
4-bromodiphenyl ether	×	√	√	×	×	×	×	√	√	×	√	√	√
Bis(4-bromophenyl) ether	√	√	√	×	×	×	×	√	√	×	×	√	√
2,4-Dibromo-1-(4-bromophenoxy)benzene;	×	×	×	×	×	×	×	×	√	×	×	√	√
2,2',4,4'-Tetrabromodiphenyl ether	×	×	×	×	×	×	×	×	√	×	×	√	√
2,2',4,4',6-Pentabromodiphenyl ether	×	×	×	×	×	×	×	×	×	×	×	√	√
2,2',4,4',5,6'-HEXABROMODIPHENYL ETHER	×	×	×	×	×	×	×	×	√	×	×	√	√
2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER	×	×	×	×	×	×	×	×	√	×	×	√	√
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	×	×	×	×	×	×	×	×	×	×	×	√	√
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	×	×	×	×	×	×	×	×	×	×	×	√	√
Bis(pentabromophenyl) ether	√	√	√	√	×	√	√	√	√	×	√	√	√
Toluene	√	√	√	√	√	√	√	√	√	√	√	√	√

- 【A】 China Inventory of Existing Chemical Substances(IECSC)  
 【B】 European Inventory of Existing Commercial Chemical Substances(EC inventory)  
 【C】 United States Toxic Substances Control Act Inventory(TSCA)  
 【D】 Canadian Domestic Substances List(DSL)  
 【E】 New Zealand Inventory of Chemicals(NZIoC)  
 【F】 Philippines Inventory of Chemicals and Chemical Substances(PICCS)  
 【G】 Korea Existing Chemicals Inventory(KECL)  
 【H】 Australian. Inventory of Industrial Chemical (AIICS)  
 【I】 Japan Inventory of Existing & New Chemical Substances(ENCS)  
 【J】 Thailand Existing Chemicals Inventory(TECI)  
 【K】 Mexico National Inventory of Chemical Substances (INSQ)  
 【L】 Russia Inventory of Existing Substances(DRAFT)  
 【M】 Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

**List of Chemical Substances under International Conventions**

Component	A	B	C
4-bromodiphenyl ether	×	×	×
Bis(4-bromophenyl) ether	×	×	×
2,4-Dibromo-1-(4-bromophenoxy)benzene;	×	×	×
2,2',4,4'-Tetrabromodiphenyl ether	×	√	√
2,2',4,4',6-Pentabromodiphenyl ether	×	√	√

2,2',4,4',5,6'-HEXABROMO DIPHENYL ETHER	x		√	√
2,2',3,4,4',5,6-HEPTABRO MODIPHENYL ETHER	x		√	√
2,2',3,4,4',5,5',6-Octabrom odiphenyl ether	x		x	√
2,2',3,3',4,4',5,5',6-Nonabr omodiphenyl ether	x		x	x
Bis(pentabromophenyl) ether	x		√	√
Toluene	x		x	x

[A] The Montreal Protocol on Substances that Deplete the Ozone Layer

[B] Stockholm Convention on Persistent Organic Pollutants (POPs)

[C] Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

### European chemical inventory

Component	A	B	C	D	E	F	G	H	I
4-bromodiphenyl ether	x	x	x	√	√	x	x	x	x
Bis(4-bromophenyl) ether	x	x	x	√	x	x	x	x	x
2,4-Dibromo-1-(4-bromophenoxy)benzene;	x	x	x	x	x	x	x	x	x
2,2',4,4'-Tetrabromodiphenyl ether	x	x	x	x	x	x	x	x	x
2,2',4,4',6-Pentabromodiphenyl ether	x	x	x	x	x	x	x	x	x
2,2',4,4',5,6'-HEXABROMODIPHENYL ETHER	x	x	x	x	x	x	x	x	x
2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER	x	x	x	x	x	x	x	x	x
2,2',3,4,4',5,5',6-Octabromodiphenyl ether	x	x	x	x	x	x	x	x	x
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	x	x	x	x	x	x	x	x	x
Bis(pentabromophenyl) ether	√	x	x	√	√	x	x	x	√
Toluene	x	x	√	√	√	√	x	x	x

[A] Candidate list of Substances of Very High Concern for authorization under EU REACH regulation

[B] Substances requiring authorisation under EU REACH regulation

[C] Substances restricted under EU REACH

[D] Pre-registered substances under EU REACH

[E] Registered substances under EU REACH

[F] Substance Evaluation – CoRAP under EU REACH

[G] List of priority substances under EU water policy ( Directive 2455/2001/EC )

[H] Substances subject to POPs Regulation

[I] Substances proposed as POPs

Note:

“√” Indicates that the substance included in the regulations.

“x” No data or not included in the regulations.

**German water hazard class(WGK)**

Component	WGK	Remark
<b>2,2',4,4',5,6'-HEXABROMODIPHENYL ETHER</b>	WGK 2	
<b>2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER</b>	WGK 2	
<b>Bis(pentabromophenyl) ether</b>	WGK 1	
<b>Toluene</b>	WGK 3	

- [WGK 1] slightly hazardous to water  
 [WGK 2] obviously hazardous to water  
 [WGK 3] highly hazardous to water  
 [nwg] non-hazardous to water  
 [awg] hazardous to water in general

**German technical instructions on air quality control(TA LUFT)**

Component	TA LUFT	Remark
<b>4-bromodiphenyl ether</b>	Chapter 5.2.5 Organic Substances. The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas: Mass flow: 0,50 kg/hr or Mass conc.: 50 mg/m <sup>3</sup> At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
<b>Bis(4-bromophenyl) ether</b>	Chapter 5.2.5 Organic Substances, dust, including fine dust. To be treated as overall dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> .	
<b>2,2',4,4',5,6'-HEXABROMODIPHENYL ETHER</b>	Chapter 5.2.5 Organic Substances. The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas: Mass flow: 0,50 kg/hr or Mass conc.: 50 mg/m <sup>3</sup> At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
<b>2,2',3,4,4',5,6-HEPTABROMODIPHENYL ETHER</b>	Chapter 5.2.5 Organic Substances. The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas: Mass flow: 0,50 kg/hr or	

	Mass conc.:50 mg/m <sup>3</sup> At old units with an annual mass flow till 1,5 Mg/a, specified as total carbon, the emissions in exhaust gas are not allowed to exceed 1,5 kg/h.	
<b>Bis(pentabromophenyl) ether</b>	Chapter 5.2.5 Organic Substances, class I. The following values are in all not allowed to be exceeded in the exhaust gas:Mass flow:0,10 kg/hr or Mass conc.:20 mg/m <sup>3</sup>	
<b>Toluene</b>	Chapter 5.2.5 Organic Substances, class I. The following values are in all not allowed to be exceeded in the exhaust gas:Mass flow:0,10 kg/hr or Mass conc.:20 mg/m <sup>3</sup>	

### German technical rules for hazardous substances(TRGS)

Component	TRGS	Remark
<b>4-bromodiphenyl ether</b>	TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 500 TRGS 509 TRGS 510 TRGS 800	
<b>Bis(4-bromophenyl) ether</b>	TRGS 500 TRGS 509 TRGS 510 TRGS 800	
<b>2,2',4,4',5,6'-HEXABROMODIPHENYL ETHER</b>	TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 401 TRGS 500 TRGS 509 TRGS 510 TRGS 800 TRGS 720 TRGS 721 TRGS 722 TRGS 723 TRGS 724	
<b>2,2',3,4,4',5,6'-HEPTABROMODIPHENYL ETHER</b>	TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 401 TRGS 500 TRGS 509 TRGS 510 TRGS 800 TRGS 720 TRGS 721 TRGS 722 TRGS 723 TRGS 724	
<b>Bis(pentabromophenyl) ether</b>	TRGS 401 TRGS 500 TRGS 509 TRGS 510 TRGS 800	
<b>Toluene</b>	TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 402 TRGS 401 TRGS 500 TRGS 509 TRGS 510 TRGS 800 TRGS 720 TRGS 721 TRGS 722 TRGS 723 TRGS 724	

### 15.2 Chemical safety assessment

	No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.
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## 16 Other information

### Information on revision

<b>Creation Date</b>	2026/01/17
<b>Revision Date</b>	-
<b>Reason for revision</b>	-

### Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.

- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.  
 [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.  
 [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.  
 [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

## Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC <sub>50</sub>	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD <sub>50</sub>	Lethal Dose 50%	NTP	National Toxicology Program
EC <sub>50</sub>	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC <sub>x</sub>	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P <sub>OW</sub>	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

## Disclaimer

This Safety Data Sheet (SDS) was prepared according to REACH Regulation. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.