

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

1.1 Product identifier

Product name: Biphenyl
CAS-No.: 92-52-4
EC-No.: 202-163-5

1.2 Relevant identified uses of the substance or mixture

Identified use: Laboratory chemical

1.3 Details of the supplier of the safety data sheet

Company: NETZSCH-Gerätebau GmbH
Wittelsbacherstraße 42
95100 Selb / Germany

Customer service Phone: +49 9287 881-555

1.4 Emergency Phone: +49 9287 881-174 (during office hours)

Fax: +49 9287 881-505

E-mail Address: service@ngb.netzsch.com

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

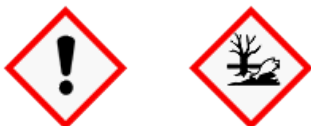
Aquatic Acute 1	H400 Very toxic to aquatic life.
Aquatic Chronic 1	H410 Very toxic to aquatic life with long lasting effects.
Skin Irrit. 2	H315 Causes skin irritation.
Eye Irrit. 2	H319 Causes serious eye irritation.
STOT SE 3	H335 May cause respiratory irritation.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms:



Signalword: Warning

Hazard statements:	H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements:	P273 Avoid release to the environment. P302 + P352 IF ON SKIN: Wash with plenty of water and soap. P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 IF exposed or concerned: Get medical advice/attention. P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
Additional information:	-

2.3 Other hazards

All chemicals are potentially dangerous.
They are therefore only be handled by specially trained personnel with the necessary care.

Results of PBT- und vPvB assessment

PBT:	Not applicable.
vPvB:	Not applicable.

3. Composition / information on ingredients

3.1 Chemical characterization:

Substances

CAS-No. Description: 92-52-4 biphenyl

Identification number(s):

EC number: 202-163-5

Formula: $C_{12}H_{10}$

Molar mass [g/mol]: 154.21

4. First aid measures

4.1 Description of first aid measures

General information:	Consult a physician. Show this safety data sheet to the doctor in attendance. Remove any clothing soiled by the product.
After inhalation:	Move person into fresh air. Consult a physician.
After skin contact:	Wash off with soap and plenty of water. If skin irritation continues, consult a doctor.
After eye contact:	To be sure rinse opened eye under running water for at least 15 minutes. Consult a physician.
After swallowing:	Rinse out mouth and drink a glass of water. Do not induce vomiting. Call for a doctor immediately and show the container or label.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5. Fire-Fighting measures

5.1 Extinguishing agents

Suitable extinguishing agents: Use fire-extinguishing methods suitable to surrounding conditions.
Water, CO₂, powder, foam.

For safety reasons unsuitable extinguishing agents: -

5.2 Special hazards arising from the substance or mixture

Flammable. In the event of fire development of hazardous combustion gases or vapours possible.

In case of fire, the following can be released:

Carbon oxides.

5.3 Advice for firefighters

Protective equipment: Wear self-contained respiratory protective device.
Wear fully protective suit.

Additional information: Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.
Avoid formation of dust.

6.2 Environmental precautions

Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ground water or penetrate the soil.
Keep contaminated washing water and dispose of appropriately.

6.3 Methods and material for containment and cleaning up

Pick up mechanically.
Dispose of the material collected according to regulations.
Ensure adequate ventilation.

6.4 Reference to other sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7. Handling and storage

7.1 Precautions for safe handling

Handling corresponding to laboratory safety guidelines.
Ensure good ventilation / exhaustion at the workplace.
Avoid contact with eyes and skin.
Avoid formation of dust and aerosol.

Information about fire and explosion protection:

No special measures required.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for safe storage, including any incompatibilities: Store in cool, dry, well-ventilated place.

Information about storage in one common storage facility: Store away from foodstuffs.

Further information about storage conditions: Keep container tightly sealed.

7.3 Specific end use(s)

No further relevant information available.

8. Exposure controls / personal protection

Additional information about design of technical facilities: No further data; see item 7.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace: Not required.

Additional information: May be harmful if resorbed through the skin.
The lists valid during the making were used as basis.

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures: Do not eat, drink or smoke while working.
Do not breathe dust.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin. Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.

Individual protection measures:

Respiratory protection: Required when dusts are generated: filter A-(P2).
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Protection of hands: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Material: Nitrile rubber.

Eye protection: Tightly sealed goggles

Body protection: Protective work clothing

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

<u>Appearance</u> Form: Colour:	Crystalline Yellowish
Odour:	Aromatic
Odour threshold:	Not determined.
pH-value:	Not applicable.
<u>Change in condition</u> Melting point / Melting range: Boiling point / Boiling range:	68-70°C 255°C
Flash point:	113°C
Flammability (solid, gaseous):	Product is not flammable.
Ignition temperature:	570°C
Decomposition temperature:	Not determined.
Self-igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
<u>Explosion limits</u> Lower: Upper:	0.6 Vol % 5.8 Vol %
Vapour pressure at 20°C:	0.07 hPa
Density at 20°C:	1.03 g/cm ³
Bulk density at 20°C:	Not determined.
Relative density:	Not determined.
Vapour density:	Not applicable.
Evaporation rate:	Not applicable.
Solubility in / Miscibility with water at 20°C:	0.007 g/l
Segregation coefficient (n-octanol / water) at 20°C:	3.98 log Pow
<u>Viscosity</u> Dynamic: Kinematic:	1.48 mPas Not applicable.

9.2 Other information

No further relevant information available.

10. Stability and reactivity

10.1 Reactivity

No data available.

10.2 Chemical stability

Thermal decomposition / conditions to be avoided:

Thermal decomposition: >440 °C

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD / LC50 values relevant
for classification:

Oral	LD50	2140 mg/kg (rat) (RTECS)
Dermal	LD50	>5010 mg/kg (rabbit)

Potential health effects

Skin:	May be harmful if resorbed through skin. Causes skin irritation.
Eyes:	Causes eye irritation.
Inhalation:	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Sensitization:	No sensitizing effects known.

CMR effects

Germ cell mutagenicity:	Genotoxicity in vitro - mouse - lymphocyte DNA-damage Genotoxicity in vitro - mouse - lymphocyte Mutation in mammalian somatic cells. Genotoxicity in vitro - Hamster - Lungs Mutation in microorganisms Genotoxicity in vitro - Hamster - fibroblast Sister chromatid exchange Genotoxicity in vivo - rat - Oral Unscheduled DNA-synthesis Genotoxicity in vivo - mouse - Oral DNA-damage
Carcinogenicity:	Carcinogenicity - mouse - Oral Tumorigenic: Equivocal tumorigenic agent by RTECS-criteria. Lungs, Thorax, or Respiration: Tumors. Blood: Tumors. Carcinogenicity - mouse - Subcutaneous Tumorigenic: Neoplastic by RTECS-criteria. Lungs, Thorax, or Respiration: Tumors. Liver: Tumors.
Reproductive toxicity:	No data available.

Aspiration hazard:

No data available.

Specific target organ toxicity – single exposure:

May irritate the respiratory system.

Specific target organ toxicity – repeated exposure:

No data available.

Additional toxicological information:

After swallowing irritations in the mouth, throat, oesophagus and gastrointestinal tract.
After swallowing nausea and vomiting.
Damage of heart, liver, kidneys at exposure over a long period of time.

Further information:

The product should be handled with the usual care as necessary for chemicals.
RTECS DU8050000

12. Ecological information

12.1 Toxicity

Aquatic toxicity

Fischtoxizität			
LC ₅₀	Pimephales promelas (fathead minnow) – 1,45 mg/l - 96,0 h	LC0	Danio rerio (zebra fish) - 38 mg/l - 96,0 h
LC ₅₀	Salmo gairdneri - 1,5 mg/l - 96,0 h	LC ₅₀	Lepomis macrochirus (Bluegill) - 4,7 mg/l - 96,0 h
LC ₅₀	Daphnia magna (Water flea) - 0,36 mg/l - 48 h		

12.2 Persistence and degradability

Persistence: No data available.

Biodegradability: Method: Closed Bottle test
Remarks: According to the results of tests of biodegradability this product is considered as being readily biodegradable.

12.3 Bioaccumulative potential

Due to the distribution coefficient n-octanol/water an accumulation in organisms is possible.

12.4 Mobility in soil

No further relevant information available.

Ecotoxicological effects

Remark: Do not allow to enter waters, waste water, or soil!

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects

Very toxic for aquatic organisms

13. Disposal considerations







13.1 Waste treatment methods

Recommendation: Dispose of residual amounts and non-reusable solutions in accordance with local legal regulations. Waste code must be classified as hazardous.

Uncleaned packaging

Recommendation: Dispose same as for unused product

14. Transport information

	ADR	IMDG	IATA
14.1 UN-Number	UN3077	UN3077	UN3077
14.2 UN proper shipping name	3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (biphenyl)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (biphenyl), MARINE POLLUTANT	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (biphenyl)
14.3 Transport hazard class(es) / -label			
14.4 Packing group:	III	III	III
Transport hazard class(es):	9 Miscellaneous dangerous substances and articles.	9 Miscellaneous dangerous substances and articles.	9 Miscellaneous dangerous substances and articles.
Label:	9	9	9
Danger symbol:	 	 	 
14.5 Environmental hazards:	yes	Marine Pollutant: yes	yes

14.6 Special precautions for user

Warning: Miscellaneous dangerous substances and articles.

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

The cargo is not intended to be carried in bulk.

15. Regulatory information

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

National regulations:

Information about limitation of use: Employment restrictions concerning pregnant and lactating women must be observed.

Employment restrictions concerning juveniles must be observed.

Waterhazard class: Water hazard class 2 (Assessment by list): hazardous for water.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

16. Other Information

Guarantee

This information has been compiled to the best of our knowledge; however, we make no claim as to its completeness and it is meant to serve only as a guideline. NETZSCH-Gerätebau GmbH disclaims any liability for damages which may occur in handling or in contact with these chemicals.

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