Toluene

34494-1L

Version 1.5 Revision Date 17.12.2022

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

1.1. Product identifier

Product name	:	Toluene
SDS-number	:	000000020210
Type of product	:	Substance
Remarks	:	SDS according to Art. 31 of Regulation (EC) 1907/2006.
Chemical name	:	Toluene
Index-No.	:	601-021-00-3
REACH Registration Number	:	no data available

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

Use of the Substance/Mixture	:	Laboratory chemicals
Uses advised against	:	none

1.3. Details of the supplier of the safety data sheet

Company	:	Honeywell International Inc. 115 Tabor Road 07950-2546 Morris Plains USA	Honeywell International, Inc. 115 Tabor Road Morris Plains, NJ 07950-2546 USA
Telephone	:		
For further information, please contact:	:	SafetyDataSheet@Honeywell.com	

1.4. Emergency telephone number

Emergency telephone number	:	+1-703-527-3887 (ChemTrec-Transport) +1-303-389-1414 (Medical)
Country based Poison Control Center	:	see chapter 15.1

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Flammable liquids Category 2
H225 Highly flammable liquid and vapour.
Aspiration hazard Category 1
H304 May be fatal if swallowed and enters airways.
Skin irritation Category 2
H315 Causes skin irritation.
Specific target organ toxicity - single exposure Category 3 - Central nervous system
H336 May cause drowsiness or dizziness.
Reproductive toxicity Category 2
H361d Suspected of damaging the unborn child.
Specific target organ toxicity - repeated exposure Category 2
H373 May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

REGULATION (EC) No 1272/2008

Hazard pictograms :

Signal word : Danger

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	:	P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
		P280	Wear protective gloves/protective clothing/eye protection/face protection.

P284	In case of inadequate ventilation wear respiratory protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.

2.3. Other hazards

Vapours may form explosive mixtures with air. Results of PBT and vPvB assessment, see chapter 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substance

Chemical name	CAS-No. Index-No. REACH Registration Number EC-No.	Classification 1272/2008	Concentration	Remarks
Toluene	108-88-3 601-021-00-3 203-625-9	Flam. Liq. 2; H225 Repr. 2; H361d STOT RE 2; H373; Inhalation Asp. Tox. 1; H304 Skin Irrit. 2; H315 STOT SE 3; H336	100 %	

3.2. Mixture

Not applicable

Occupational Exposure Limit(s), if available, are listed in Section 8.
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:
First aider needs to protect himself. Move out of dangerous area. Take off all contaminated clothing immediately.

Inhalation:
If breathed in, move person into fresh air. Call a physician immediately.

Skin contact:
After contact with skin, wash immediately with plenty of soap and water. Call a physician immediately.

Eye contact:
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Protect unharmed eye. Remove contact lenses. Call a physician if irritation develops or persists.

Ingestion:
When swallowed, allow water to be drunk. Do NOT induce vomiting. Call a physician immediately.

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

Ingestion may provoke the following symptoms:, Drowsiness, Dizziness, Nausea, VomitingIngestion may provoke the following symptoms:, Drowsiness, Dizziness, Nausea, Vomiting

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

Treat symptomatically.

See Section 11 for more detailed information on health effects and symptoms. :

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

Extinguishing media which shall not be used for safety reasons:
High volume water jet

5.2. Special hazards arising from the substance or mixture

Flammable.
Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapors may travel to areas away from work site before igniting/flashing back to vapor source.
In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO2)

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.
No unprotected exposed skin areas.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.Do not use a solid water stream as it may scatter and spread fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Use personal protective equipment. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system.

6.3. Methods and materials for containment and cleaning up

Soak up with inert absorbent material.
Pick for disposal in tightly closed containers

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:
Exhaust ventilation at the object is necessary. Use explosion-proof equipment. Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion:
Use explosion-proof equipment. Take measures to prevent the build up of electrostatic charge. Keep away from sources of ignition - No smoking. The heavy vapours can overcome a considerable distance up to the source of ignition.

Hygiene measures:
Take off all contaminated clothing immediately. Recommended preventive skin protection When using, do not eat, drink or smoke.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:
Store in original container. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep away from direct sunlight.

7.3. Specific end use(s)

no additional data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

Components	Basis / Value type	Value / Form of exposure	Exceeding Factor	Remarks
Toluene	EH40 WEL SKIN_DES			Can be absorbed through the skin.
Toluene	EH40 WEL TWA	191 mg/m3 50 ppm		
Toluene	EH40 WEL STEL	384 mg/m3 100 ppm		
Toluene	EU ELV STEL	384 mg/m3 100 ppm		Indicative
Toluene	EU ELV TWA	192 mg/m3 50 ppm		Indicative
Toluene	EU ELV SKIN_DES			Can be absorbed through the skin.

SKIN_DES - Skin designation:
TWA - Time weighted average
STEL - Short term exposure limit

DNEL/ PNEC-Values

Component	End-use/impact	Exposure duration	Value	Exposure routes	Remarks
Toluene	Consumers / Long-term systemic effects		8,13mg/kg bw/d	Ingestion	
Toluene	Consumers / Long-term systemic effects		226mg/kg bw/d	Skin contact	
Toluene	Workers / Long-term systemic effects		384mg/kg bw/d	Skin contact	

Toluene	Consumers / Acute local effects		226 mg/m3	Inhalation	
Toluene	Workers / Acute local effects		384 mg/m3	Inhalation	
Toluene	Consumers / Acute systemic effects		226 mg/m3	Inhalation	
Toluene	Workers / Acute systemic effects		384 mg/m3	Inhalation	
Toluene	Workers / Long-term local effects		192 mg/m3	Inhalation	
Toluene	Consumers / Long-term systemic effects		56,5 mg/m3	Inhalation	
Toluene	Workers / Long-term systemic effects		192 mg/m3	Inhalation	

Component	Environmental compartment / Value	Remarks
Toluene	Fresh water: 0,68 mg/l	
Toluene	Fresh water sediment: 16,39 mg/kg	
Toluene	Soil: 2,89 mg/kg	
Toluene	Sewage treatment plant: 13,61 mg/l	

8.2. Exposure controls

Occupational exposure controls

The Personal Protective Equipment must be in accordance with EN standards:respirator EN 136, 140, 149; safety glasses EN 166; protective suit: EN 340, 463, 468, 943-1, 943-2; gloves EN 374, 511;

safety shoes EN-ISO 20345.
Ensure that eyewash stations and safety showers are close to the workstation location.
Do not breathe vapours/dust.

Engineering measures
Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use.

Personal protective equipment
Respiratory protection:
In the case of vapour formation use a respirator with an approved filter.
Recommended Filter type:
Organic vapour type

Hand protection:
Glove material: Viton®
Break through time: > 480 min
Glove thickness: 0,7 mm
Vitoject® 890
Gloves must be inspected prior to use.
Replace when worn.
Remarks:Supplementary note: The specifications are based on information and tests from similar substances by analogy.
Due to varying conditions (e.g.temperature or other strains) it must be considered that the usage of a chemical protective glove in practice may be much shorter than the permeation time determined in accordance with EN 374.
Since actual conditions of practical use often deviate from standardised conditions according EN 374 the glove manufacturer reccomends to use the chemical protective glove in practice not longer than 50% of the recomended permeation time.
Manufacturer´s directions for use should be observed because of great diversity of types .
Suitable gloves tested according EN 374 are supplied e.g. from KCL GmbH, D-36124 Eichenzell, Vertrieb@kcl.de

Eye protection:
Safety goggles

Skin and body protection:
Flame retardant antistatic protective clothing.

Environmental exposure controls

Handle in accordance with local environmental regulations and good industrial practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	colourless
Odour	:	aromatic
molecular weight	:	92,14 g/mol
Melting point/range	:	-95 °C
Boiling point/boiling range	:	109 - 112 °C at 1.013 hPa
Upper explosion limit	:	7 %(V)
Lower explosion limit	:	1,2 %(V)
Flash point	:	6 °C Method: closed cup
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No decomposition if stored and applied as directed.
pH	:	No data available
Viscosity, kinematic	:	No data available
Water solubility	:	0,5 g/l at 20 °C
Solubility in other solvents	:	Soluble in most organic solvents
Partition coefficient: n-octanol/water	:	log Pow 2,65

Vapour pressure	:	123 hPa at 50 °C
Vapour pressure	:	29 hPa at 20 °C
Density	:	0,865 - 0,868 g/cm3 at 20 °C

9.2 Other Information

Evaporation rate	:	No data available
Viscosity, dynamic	:	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

No decomposition if stored and applied as directed.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Heat, flames and sparks.
Keep away from direct sunlight.

10.5. Incompatible materials

Strong oxidizing agents
Strong acids

May attack many plastics, rubbers and coatings.

10.6. Hazardous decomposition products

In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide
Carbon dioxide (CO2)

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:
LD50
Species: Rat
Value: > 5.000 mg/kg
Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)

Acute dermal toxicity:
LD50
Species: Rabbit
Value: > 5.000 mg/kg

Acute inhalation toxicity:
LC50
Species: Rat
Value: > 20 mg/l
Exposure time: 4 h
Method: OECD Test Guideline 403

Skin irritation:
Species: Rabbit
Result: irritating
Method: EEC 92/69, B.4

Eye irritation:
Species: Rabbit
Result: non-irritant
Method: OECD Test Guideline 405

Respiratory or skin sensitisation:
Route of exposure: Dermal
Species: Guinea pig
Result: non-sensitizing

Method: EEC 92/69, B.6

Repeated dose toxicity:
Note: Conclusive and supporting classification (Ref: REACH Dossier - ECHA disseminated data)

Carcinogenicity:
Species: not specified
Note: Not classified due to data which are conclusive although insufficient for classification.
Germ cell mutagenicity:
Test Method: In vitro mammalian cell gene mutation test
Cell type: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Result: negative
Method: OECD Test Guideline 476

Reproductive toxicity:
Remarks: Classification based on Annex VI of regulation 1272/2008/EC.
Aspiration hazard:
May be fatal if swallowed and enters airways.

11.2. Information on other hazards

Endocrine disrupting properties
No data available

Other information:
Solvent removes skin oil from the skin.
Solvent vapours have a narcotic effect if inhaled in high concentrations.

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish:
No data available

Toxicity to aquatic plants:
No data available

Toxicity to Microorganisms:
No data available

Toxicity to aquatic invertebrates:
No data available

Chronic toxicity to aquatic invertebrates:
No data available

12.2. Persistence and degradability

Biodegradability:
Biodegradation: 81 %
Exposure time: 5 d
Result: Readily biodegradable

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product:
Dispose according to legal requirements.

Packaging:
Legal requirements are to be considered in regard of reuse or disposal of used packaging materials

Further information:
Provisions relating to waste:

EC Directive 2006/12/EC; 2008/98/EEC
Regulation No. 1013/2006

For personal protection see section 8.

SECTION 14: Transport information

14.1 UN number
ADR/RID:1294 IMDG:1294 IATA:1294

14.2 UN proper shipping name
ADR/RID:TOLUENE
IMDG:TOLUENE
IATA:Toluene

14.3 Transport hazard class(es)
ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group
ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards
ADR/RID:no Marine pollutant: no

14.6 Special precautions for user
No data available

14.7 Maritime transport in bulk according to IMO instruments
No data available

SECTION 15: Regulatory information

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

Basis	Value	Remarks
Regulation (EC) No. 1907/2006, Annex XVII		This product contains an ingredient according to Annex XVII of the REACH Regulation1907/2006/EC.
Directive 2012/18/EC SEVESO III Listed in Regulation : P5c: FLAMMABLE LIQUIDS	**Quantity**: 5.000.000 kg **Quantity**: 50.000.000 kg	

Number in Regulation: 1.2.5.3		
Substances of very high concern (SVHC)		This product does not contain substances of very high concern according to Regulation (EC) No Article 57 above the respective regulatory 1907/2006 (REACH), concentration limit of ≥ 0.1 % (w/w).

Poison Control Center

Country	Phone Number
Austria	+4314064343
Belgium	070 245245
Bulgaria	(+)35929154233
Croatia	(+3851)23-48-342
Cyprus	+357 2240 5611
Czech Republic	+420224919293; +420224915402
Denmark	82121212
Estonia	16662; (+372)6269390
Finland	9471977
France	+33(0)145425959
Greece	+30 210 779 3777
Hungary	(+36-80)201-199
Iceland	5432222
Ireland	+353(1)8092166
Italy	0382 24444
Germany	Berlin : 030/19240
	Bonn : 0228/19240
	Erfurt : 0361/730730
	Freiburg : 0761/19240
	Göttingen : 0551/19240

Country	Phone Number
Liechtenstein	+41 442515151
Lithuania	+370532362052
Luxembourg	070245245; (+352)80002-5500
Malta	+356 2395 2000
Netherlands	030-2748888
Norway	22591300
Poland	+48 42 25 38 400
Portugal	800250250
Romania	+40 21 318 3606
Slovakia (NTIC)	+421 2 54 774 166
Slovenia	+386 1 400 6051
Spain	+34915620420
Sweden	112 (begär Giftinformation);+46104566786
Switzerland	145
United Kingdom	(+44) 844 892 0111

	Homburg : 06841/19240
	Mainz : 06131/19240
	Munich : 089/19240
Latvia	+37167042473

Other inventory information

US. Toxic Substances Control Act
On TSCA Inventory

Australia. Inventory of Industrial Chemicals (AIIC), as amended
On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)
All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List
On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI)
On the inventory, or in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS)
On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances (IECSC)
On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand
On the inventory, or in compliance with the inventory

Taiwan Chemical Substance Inventory (TCSI)
On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Text of H-statements referred to under heading 3

Toluene	:	H225	Highly flammable liquid and vapour.
		H361d	Suspected of damaging the unborn child.
		H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
		H304	May be fatal if swallowed and enters airways.
		H315	Causes skin irritation.
		H336	May cause drowsiness or dizziness.
benzene (Impurity)	:	H225	Highly flammable liquid and vapour.
		H315	Causes skin irritation.
		H319	Causes serious eye irritation.
		H340	May cause genetic defects.
		H350	May cause cancer.
		H372	Causes damage to organs through prolonged or repeated exposure if swallowed and inhaled.
		H304	May be fatal if swallowed and enters airways.
		H412	Harmful to aquatic life with long lasting effects.

Further information

All directives and regulations refer to amended versions.
Vertical lines in the left hand margin indicate a relevant amendment from the previous version.

Abbreviations:
EC European Community
CAS Chemical Abstracts Service
DNEL Derived no effect level
PNEC Predicted no effect level
vPvB Very persistent and very biaccumulative substance
PBT Persistent, bioaccmulative und toxic substance

Toluene

34494-1L

Version 1.5 Revision Date 17.12.2022

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. Final determination of suitability of any material is the sole responsibility of the user.
This information should not constitute a guarantee for any specific product properties.