

Safety data sheet

Safe Work Australia - Code of Practice



DABCO® ≥ 99%

article number: **0718**
Version: **GHS 1.0 en**

date of compilation: 2019-01-31

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

1.1 Product identifier

Identification of the substance	DABCO®
Article number	0718
Registration number (REACH)	01-2119980944-22-xxxx
EC number	205-999-9
CAS number	280-57-9

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

Identified uses: laboratory chemical
laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
2.7	flammable solid	(Flam. Sol. 1)	H228
3.10	acute toxicity (oral)	(Acute Tox. 4)	H302
3.1D	acute toxicity (dermal)	(Acute Tox. 5)	H313
3.2	skin corrosion/irritation	(Skin Irrit. 2)	H315
3.3	serious eye damage/eye irritation	(Eye Dam. 1)	H318

2.2 Label elements

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Labelling GHS

Signal word

Danger

Pictograms

GHS02, GHS05,
GHS07



Hazard statements

H228	Flammable solid
H302	Harmful if swallowed
H313	May be harmful in contact with skin
H315	Causes skin irritation
H318	Causes serious eye damage

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280	Wear protective gloves.

Precautionary statements - response

P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction.

Precautionary statements - disposal

P501	Dispose of contents/container to industrial combustion plant.
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Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H313	May be harmful in contact with skin.
H318	Causes serious eye damage.
P280	Wear protective gloves.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

There is no additional information.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	1,4-Diazabicyclo[2.2.2]octane
Registration number (REACH)	01-2119980944-22-xxxx
EC number	205-999-9
CAS number	280-57-9
Molecular formula	C ₆ H ₁₂ N ₂
Molar mass	112.2 g/mol

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Irritation, Cough, Headache, Vertigo, Nausea, Dyspnoea, Risk of serious damage to eyes

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO₂)

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Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible.

Hazardous combustion products

In case of fire may be liberated: nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂)

5.3 Advice for firefighters

Vapours are heavier than air. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Do not breathe dust. Avoid contact with skin and eyes. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Take up mechanically. Control of dust.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide adequate ventilation. Avoid dust formation. When not in use, keep containers tightly closed.

• Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Removal of dust deposits.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs. Wash hands before breaks and after work. When using do not smoke.

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7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Store in a dry place.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

- **Ventilation requirements**

Use local and general ventilation.

- **Specific designs for storage rooms or vessels**

Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Data are not available.

Relevant DNELs/DMELs/PNECs and other threshold levels

- **human health values**

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	1.2 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	3.6 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects

- **environmental values**

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	1 mg/l	water	intermittent release
PNEC	0.1 mg/l	freshwater	short-term (single instance)
PNEC	0.01 mg/l	marine water	short-term (single instance)
PNEC	200 mg/l	sewage treatment plant (STP)	short-term (single instance)
PNEC	1.3 mg/kg	freshwater sediment	short-term (single instance)
PNEC	0.13 mg/kg	marine sediment	short-term (single instance)
PNEC	0.19 mg/kg	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



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Use safety goggle with side protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P2 (filters at least 94 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid (powder, crystalline)
Colour	white - light yellow
Odour	like ammonia
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	This information is not available.
Melting point/freezing point	155 – 158 °C
Initial boiling point and boiling range	174 – 176 °C
Flash point	62 °C
Evaporation rate	no data available
Flammability (solid, gas)	Flammable solid in accordance with GHS criteria

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Explosive limits

• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	these information are not available
Vapour pressure	0.68 hPa at 21 °C
Density	1.14 g/cm ³ at 20 °C
Vapour density	This information is not available.
Bulk density	~ 800 kg/m ³
Relative density	Information on this property is not available.

Solubility(ies)

Water solubility ~ 400 g/l at 20 °C

Partition coefficient

n-octanol/water (log KOW)	-0.49 (pH value: 7, 20 °C) (ECHA)
Soil organic carbon/water (log KOC)	1.955 (ECHA)
Auto-ignition temperature	350 °C
Decomposition temperature	no data available
Viscosity	not relevant (solid matter)
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

9.2 Other information

SECTION 10: Stability and reactivity

10.1 Reactivity

Risk of ignition. Dust explosibility.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: Acids, Mineral acids, Peroxides, Oxidisers, Iron,
Danger of explosion: Hydrogen peroxide

10.4 Conditions to avoid

Humidity. Keep away from heat.

10.5 Incompatible materials

aluminium, iron, copper, zinc

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
oral	LD50	700 mg/kg	rat	ECHA
dermal	LD50	>2,000 mg/kg	rabbit	ECHA

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

- **Specific target organ toxicity - single exposure**

Shall not be classified as a specific target organ toxicant (single exposure).

- **Specific target organ toxicity - repeated exposure**

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

- **If swallowed**

nausea

- **If in eyes**

Causes serious eye damage, risk of blindness

- **If inhaled**

cough, irritant effects

- **If on skin**

causes skin irritation

Other information

Other adverse effects: Headache, Vertigo, Dyspnoea, Renal impairment

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SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
EC50	>100 mg/l	aquatic invertebrates	ECHA	48 h

Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	355.6 mg/l	microorganisms	ECHA	17 h
growth (EbCx) 10%	210.9 mg/l	microorganisms	ECHA	17 h

12.2 Process of degradability

Not readily biodegradable. Theoretical Oxygen Demand with nitrification: 2.745 mg/mg

Theoretical Oxygen Demand: 2.139 mg/mg

Theoretical Carbon Dioxide: 2.354 mg/mg

Process	Degradation rate	Time
biotic/abiotic	7 %	28 d
carbon dioxide generation	7 %	28 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW) -0.49 (pH value: 7, 20 °C)

BCF <13 (ECHA)

12.4 Mobility in soil

The Organic Carbon normalised adsorption coefficient 1.955

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

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Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

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13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	1325
14.2	UN proper shipping name Hazardous ingredients	FLAMMABLE SOLID, ORGANIC, N.O.S. 1,4-Diazabicyclo[2.2.2]octane
14.3	Transport hazard class(es)	
	Class	4.1 (flammable solids)
14.4	Packing group	II (substance presenting medium danger)
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)
14.6	Special precautions for user	
	Provisions for dangerous goods (ADR) should be complied within the premises.	
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.	
14.8	Information for each of the UN Model Regulations	
	• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)	
	UN number	1325
	Proper shipping name	FLAMMABLE SOLID, ORGANIC, N.O.S.
	Particulars in the transport document	UN1325, FLAMMABLE SOLID, ORGANIC, N.O.S., (1,4-Diazabicyclo[2.2.2]octane), 4.1, II, (E)
	Class	4.1
	Classification code	F1
	Packing group	II
	Danger label(s)	4.1

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Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 kg
Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	40
Emergency Action Code	1Z

• **International Maritime Dangerous Goods Code (IMDG)**

UN number	1325
Proper shipping name	FLAMMABLE SOLID, ORGANIC, N.O.S.
Particulars in the shipper's declaration	UN1325, FLAMMABLE SOLID, ORGANIC, N.O.S., (1,4-Diazabicyclo[2.2.2]octane), 4.1, II
Class	4.1
Marine pollutant	-
Packing group	II
Danger label(s)	4.1



Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 kg
EmS	F-A, S-G
Stowage category	B

• **International Civil Aviation Organization (ICAO-IATA/DGR)**

UN number	1325
Proper shipping name	Flammable solid, organic, n.o.s.
Particulars in the shipper's declaration	UN1325, Flammable solid, organic, n.o.s., (1,4-Diazabicyclo[2.2.2]octane), 4.1, II
Class	4.1
Packing group	II
Danger label(s)	4.1



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Special provisions (SP)	A3
Excepted quantities (EQ)	E2
Limited quantities (LQ)	5 kg

SECTION 15: Regulatory information

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

National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

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SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
BCF	bioconcentration factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

- UN Recommendations on the Transport of Dangerous Good
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

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Code	Text
H228	flammable solid
H302	harmful if swallowed
H313	may be harmful in contact with skin
H315	causes skin irritation
H318	causes serious eye damage

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.