

Adamantane

Version number: GHS 2.1
Replaces version of: 2019-12-17 (GHS 1)

Revision: 2021-08-12

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

1.1 Product identifier

Identification of the substance **Adamantane**
 Registration number (REACH) this information is not available
 CAS number 281-23-2
 Article number A0001151

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

Relevant identified uses General use

1.3 Details of the supplier of the safety data sheet

Chemos GmbH & Co. KG
 Sonnenring 7
 84032 Altdorf
 Germany

Telephone: +49 871-966346-0
 Telefax: +49 871-966346-13
 e-mail: chemos@chemos.de
 Website: http://www.chemos.de/

e-mail (competent person) chemos@chemos.de

1.4 Emergency telephone number

Emergency information service +49 89 1 92 40

Poison centre				
Country	Name	Postal code/ city	Telephone	Telefax
United Kingdom	National Poison Information Centre Medical Toxicology Unit	SE14 5ER Lon- don	+44 171 635 91 91	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.3	serious eye damage/eye irritation	2	Eye Irrit. 2	H319

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- Signal word warning

- Pictograms

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- Hazard statements
H319 Causes serious eye irritation.
- Precautionary statements
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/
....
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Name of substance	Adamantane
Identifiers	
CAS No	281-23-2
Molecular formula	C ₁₀ H ₁₆
Molar mass	136.2 g/mol

SECTION 4: First aid measures**4.1 Description of first aid measures**

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, ABC-powder

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Take up mechanically

Advice on how to clean up a spill

Take up mechanically.

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.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

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

Use local and general ventilation. Take precautionary measures against static discharge. Use only in well-ventilated areas. Ground/bond container and receiving equipment.

- Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Removal of dust deposits.

- Ventilation requirements

Use local and general ventilation.

7.3 Specific end use(s)

See section 16 for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)											
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Notation	Source
GB	dust		WEL		10					i	EH40/2005
GB	dust		WEL		4					r	EH40/2005

Notation

Ceiling-C ceiling value is a limit value above which exposure should not occur

i inhalable fraction

r respirable fraction

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit); measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

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Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear protective gloves.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

Particulate filter device (EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	solid (powder)
Colour	beige
Odour	characteristic
Melting point/freezing point	209 – 212 °C
Boiling point or initial boiling point and boiling range	185.6 °C
Flammability	this material is combustible, but will not ignite readily
Lower and upper explosion limit	not determined
Flash point	not applicable
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	not applicable
Kinematic viscosity	not relevant
Solubility(ies)	not determined

Partition coefficient

Partition coefficient n-octanol/water (log value)	this information is not available
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Vapour pressure	not determined
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Density and/or relative density

Density	1.07 g/cm ³
Relative vapour density	information on this property is not available

Particle characteristics	no data available
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9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
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Other safety characteristics

Solid content	100 %
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SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

Hints to prevent fire or explosion

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

Oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

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SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Shall not be classified as acutely toxic.

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified 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.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

Information on this property is not available.

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12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

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

SECTION 14: Transport information

- | | |
|---|---|
| 14.1 UN number or ID number | not subject to transport regulations |
| 14.2 UN proper shipping name | not relevant |
| 14.3 Transport hazard class(es) | none |
| 14.4 Packing group | not assigned |
| 14.5 Environmental hazards | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 Special precautions for user | There is no additional information. |
| 14.7 Maritime transport in bulk according to IMO instruments | The cargo is not intended to be carried in bulk. |

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

Not subject to ADR, RID and ADN.

International Maritime Dangerous Goods Code (IMDG) - Additional information

Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Relevant provisions of the European Union (EU)

Deco-Paint Directive

VOC content	100 %
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Industrial Emissions Directive (IED)

VOC content	0 %
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National inventories

Country	Inventory	Status
AU	AICS	substance is listed
CA	NDSL	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
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS	Australian Inventory of Chemical Substances
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
NDSL	Non-domestic Substances List (NDSL)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
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.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-rel- evant
2.1		Classification according to Regulation (EC) No 1272/2008 (CLP): change in the listing (table)	yes
2.1	The most important adverse physicochemical, human health and environmental effects: Spillage and fire water can cause pollution of watercourses.		yes
2.2		- Pictograms: change in the listing (table)	yes
2.2		- Hazard statements: change in the listing (table)	yes
2.2		- Precautionary statements: change in the listing (table)	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
4.1	Following skin contact: Brush off loose particles from skin. Rinse skin with water/shower.	Following skin contact: Rinse skin with water/shower.	yes
6.2	Environmental precautions: Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.	Environmental precautions: Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.	yes
7.2	- Packaging compatibilities: Only packagings which are approved (e.g. acc. to ADR) may be used.		yes
9.1	Appearance		yes
9.1	Other safety parameters		yes
9.1		Lower and upper explosion limit: not determined	yes
9.1	Evaporation rate: not determined		yes
9.1	Explosion limits of dust clouds: not determined		yes
9.1		Decomposition temperature: not relevant	yes
9.1		Kinematic viscosity: not relevant	yes
9.1		Density and/or relative density	yes
9.1	Vapour density: this information is not available		yes
9.1	Viscosity: not relevant (solid matter)		yes
9.1	Explosive properties: none		yes
9.1	Oxidising properties: none		yes
9.1		Relative vapour density: information on this property is not available	yes
9.1		Particle characteristics: no data available	yes
9.2		Information with regard to physical hazard classes: hazard classes acc. to GHS (physical hazards): not relevant	yes
9.2		Other safety characteristics	yes
11.1	Serious eye damage/eye irritation: Shall not be classified as seriously damaging to the eye or eye irritant.	Serious eye damage/eye irritation: Causes serious eye irritation.	yes
11.2		Information on other hazards: There is no additional information.	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
12.1	Toxicity: Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.	Toxicity: Shall not be classified as hazardous to the aquatic environment.	yes
12.6	Other adverse effects: Data are not available.	Endocrine disrupting properties: Information on this property is not available.	yes
13.1	Waste treatment of containers/packagings: It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.	Waste treatment of containers/packagings: Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.	yes
14.1	UN number: 3077	UN number or ID number: not subject to transport regulations	yes
14.2	UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	UN proper shipping name: not relevant	yes
14.2	Technical name: Adamantane		yes
14.3	Transport hazard class(es)	Transport hazard class(es): none	yes
14.3	Class: 9 (environmentally hazardous)		yes
14.4	Packing group: III (substance presenting low danger)	Packing group: not assigned	yes
14.5	Environmental hazards: hazardous to the aquatic environment	Environmental hazards: non-environmentally hazardous acc. to the dangerous goods regulations	yes
14.6	Special precautions for user: Provisions for dangerous goods (ADR) should be complied within the premises.	Special precautions for user: There is no additional information.	yes
14.7	Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)	Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information: Not subject to ADR, RID and ADN.	yes
14.7	UN number: 3077		yes
14.7	Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.		yes
14.7	Class: 9		yes
14.7	Classification code: M7		yes
14.7	Packing group: III		yes
14.7	Danger label(s): 9, fish and tree		yes
14.7		Danger label(s): change in the listing (table)	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.7	Environmental hazards: yes (hazardous to the aquatic environment)		yes
14.7	Special provisions (SP): 274, 335, 375, 601		yes
14.7	Excepted quantities (EQ): E1		yes
14.7	Limited quantities (LQ): 5 kg		yes
14.7	Transport category (TC): 3		yes
14.7	Tunnel restriction code (TRC): -		yes
14.7	Hazard identification No: 90		yes
14.7	Emergency Action Code: 2Z		yes
14.7	UN number: 3077		yes
14.7	Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.		yes
14.7	Class: 9		yes
14.7	Marine pollutant: yes (hazardous to the aquatic environment)		yes
14.7	Packing group: III		yes
14.7	Danger label(s): 9, fish and tree		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): 274, 335, 966, 967, 969		yes
14.7	Excepted quantities (EQ): E1		yes
14.7	Limited quantities (LQ): 5 kg		yes
14.7	EmS: F-A, S-F		yes
14.7	Stowage category: A		yes
14.7	UN number: 3077		yes
14.7	Proper shipping name: Environmentally hazardous substance, solid, n.o.s.		yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.7	Class: 9		yes
14.7	Environmental hazards: yes (hazardous to the aquatic environment)		yes
14.7	Packing group: III		yes
14.7	Danger label(s): 9, fish and tree		yes
14.7		Danger label(s): change in the listing (table)	yes
14.7	Special provisions (SP): A97, A158, A179, A197		yes
14.7	Excepted quantities (EQ): E1		yes
14.7	Limited quantities (LQ): 30 kg		yes
14.7	International Maritime Dangerous Goods Code (IMDG)	International Maritime Dangerous Goods Code (IMDG) - Additional information: Not subject to IMDG.	yes
14.7	International Civil Aviation Organization (ICAO-IATA/DGR)	International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information: Not subject to ICAO-IATA.	yes
15.1	VOC content: 0 %	VOC content: 100 %	yes
15.1		National inventories	yes
15.1		National inventories: change in the listing (table)	yes
16		Abbreviations and acronyms: change in the listing (table)	yes
16	Key literature references and sources for data: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU. Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).	Key literature references and sources for data: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU. Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).	yes
16		List of relevant phrases (code and full text as stated in chapter 2 and 3): change in the listing (table)	yes

Abbreviations and acronyms

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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 relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
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
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
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)
STEL	Short-term exposure limit
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

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

Code	Text
H319	Causes serious eye irritation.

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Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.