

## Chemical Safety Data Sheet MSDS / SDS

## AIBN

Revision Date:2026-06-06 Revision Number:1

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

## Product identifier

Product name : AIBN  
CBnumber : CB2494212  
CAS : 78-67-1  
EINECS Number : 201-132-3  
Synonyms : AIBN,Azobisisobutyronitrile

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P403 Store in a well-ventilated place.  
P370+P378 In case of fire: Use ... for extinction.  
P273 Avoid release to the environment.  
P235 Keep cool.  
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

## Hazard statements

H412 Harmful to aquatic life with long lasting effects  
H242 Heating may cause a fire

## SECTION 3: Composition/information on ingredients

## Substance

Product name	: AIBN
Synonyms	: AIBN, Azobisisobutyronitrile
CAS	: 78-67-1
EC number	: 201-132-3
MF	: C8H12N4
MW	: 164.21

---

## SECTION 4: First aid measures

### General advice

Show this safety data sheet to the doctor in attendance.

### If inhaled

After inhalation: fresh air. Call in physician.

### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

### If swallowed

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

### Protection of first-aiders

For personal protection see section 8.

### Notes to physician

No data available

---

## SECTION 5: Firefighting measures

### Suitable extinguishing media

Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

## Specific hazards during fire fighting

Combustible. Pay attention to flashback. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

## Hazardous combustion products

Carbon oxides Nitrogen oxides (NO<sub>x</sub>)

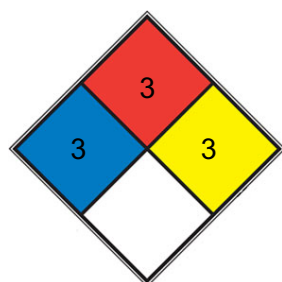
## Specific extinguishing methods

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

## NFPA 704



HEALTH 3 Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

FIRE 3 Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions . Liquids having a flash point below 22.8 °C (73 °F) and having a boiling point at or above 37.8 °C (100 °F) or having a flash point between 22.8 and 37.8 °C (73 and 100 °F). (e.g. gasoline, [acetone](#))

REACT 3 Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked (e.g. [ammonium nitrate](#), cesium, hydrogen peroxide)

SPEC.  
 HAZ.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.

### Environmental precautions

Do not let product enter drains. Risk of explosion.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area.

---

## **SECTION 7: Handling and storage**

### **Handling**

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Avoidance of contact**

Aldehydes Strong oxidizing agents Alcohols Alkali metals Heptane Contamination Acetone

### **Storage**

#### **Further information on storage conditions**

Keep container tightly closed in a dry and wellventilated place. Keep away from heat and sources of ignition.

#### **Storage class**

3, Flammable liquids

#### **Recommended storage temperature**

2 - 8 °C

---

## **SECTION 8: Exposure controls/personal protection**

### **Ingredients with workplace control parameters**

Biological occupational exposure limits has ended) o-Cresol Urine End of 0.3 mg/g ACGIH shift creatinine BEI (As soon as possible after exposure ceases)

### **Engineering measures**

No data available

### **Personal protective equipment**

#### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### **Recommended Filter type**

Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Safety glasses

**Skin and body protection**

Flame retardant antistatic protective clothing.

**Hand protection****Remarks**

required

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

---

## SECTION 9: Physical and chemical properties

**Information on basic physicochemical properties**

liquid

---

**Color**

white

**Odor**

odorless

**Odor Threshold**

No data available

**pH**

No data available

**Melting point/ range**

-95 - -93 °C

**Boiling point/boiling range**

110.6 °C (1,013 hPa)

Decomposition: no

**Flash point**

4.4 °C

**Evaporation rate**

No data available

**Flammability (solid, gas)**

No data available

**Flammability (liquids)**

No data available

**Burning rate**

No data available

**Upper explosion limit / Upper flammability limit**

No data available

**Lower explosion limit / Lower flammability limit**

No data available

**Vapor pressure**

0.81Pa at 24.85°C

**Relative vapor density**

No data available

**Relative density**

1.11

**Density**

0.858 g/cm<sup>3</sup> (25 °C)

**Water solubility**

Insoluble

**Partition coefficient: n-octanol/water**

No data available

**Autoignition temperature**

No data available

**Decomposition temperature**

No data available

**Viscosity, dynamic**

No data available

**Viscosity, kinematic**

No data available

**Flow time**

No data available

**Explosive properties**

Not classified as explosive.

### **Oxidizing properties**

none

### **Molecular weight**

164.21 g/mol

### **Particle characteristics Particle size**

No data available

### **Solubility**

Chloroform (Slightly), Methanol (Slightly)

### **Physical state**

Solid

---

## SECTION 10: Stability and reactivity

### **Reactivity**

Vapours may form explosive mixture with air.

### **Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **Possibility of hazardous reactions**

No data available

### **Conditions to avoid**

Warming.

### **Incompatible materials**

Aldehydes Strong oxidizing agents Alcohols Alkali metals Heptane Contamination Acetone

### **Hazardous decomposition products**

In the event of fire: see section 5

---

## SECTION 11: Toxicological information

### **11.1 Information on toxicological effects**

#### **Mixture Acute toxicity**

Oral: No data available

Acute toxicity estimate Oral - > 5,000 mg/kg (Calculation method)

Acute toxicity estimate Inhalation - 4 h - 25 mg/l - vapour(Calculation method)

Dermal: No data available

### **Skin corrosion/irritation**

Remarks: Mixture causes skin irritation.

### **Serious eye damage/eye irritation**

Classified based on available data. For more details, see section 2

### **Respiratory or skin sensitization**

Classified based on available data. For more details, see section 2

### **Germ cell mutagenicity**

Classified based on available data. For more details, see section 2

### **Carcinogenicity**

Classified based on available data. For more details, see section 2

### **Reproductive toxicity**

Suspected of damaging the unborn child.

Suspected of damaging fertility.

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

Mixture may cause drowsiness or dizziness.

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

Mixture may cause damage to organs through prolonged or repeated exposure.

- Central nervous system

### **Aspiration hazard**

Aspiration hazard, Aspiration may cause pulmonary oedema and pneumonitis.

## **11.2 Additional Information**

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

### **Components Toluene**

#### **Acute toxicity**

LD50 Oral - Rat - male - 5,580 mg/kg (Directive 67/548/EEC, Annex V, B.1.)

LC50 Inhalation - Rat - male - 4 h - 25.7 mg/l - vapour (OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - > 5,000 mg/kg

Remarks: (ECHA)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: irritating - 4 h (Regulation (EC) No. 440/2008, Annex, B.4)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation (OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

Maximisation Test - Guinea pig

Result: negative (Regulation (EC) No. 440/2008, Annex, B.6)

#### **Germ cell mutagenicity**

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Result: negative

Test Type: Ames test

Test system: S. typhimurium

Result: negative

Species: Rat - Bone marrow

Result: negative

Remarks: (ECHA)

### **Carcinogenicity**

Classified based on available data. For more details, see section 2

### **Reproductive toxicity**

Suspected of damaging the unborn child.

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

Inhalation - May cause drowsiness or dizziness. - Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

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

Inhalation - May cause damage to organs through prolonged or repeated exposure.

- Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

### **Aspiration hazard**

Aspiration may cause pulmonary oedema and pneumonitis.

### **2,2'-dimethyl-2,2'-azodipropionitrile Acute toxicity**

LD50 Oral - Rat - female - 300 - 2,000 mg/kg (OECD Test Guideline 423)

Acute toxicity estimate Inhalation - 4 h - 1.5 mg/l - dust/mist (Expert judgement)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

LD50 Dermal - Rat - male and female - > 2,000 mg/kg (OECD Test Guideline 402)

### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h (OECD Test Guideline 404)

### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation - 1 s (OECD Test Guideline 405)

### **Respiratory or skin sensitization**

Maximisation Test - Guinea pig

Result: negative (OECD Test Guideline 406)

### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster lung cells

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

#### **Carcinogenicity**

Classified based on available data. For more details, see section 2

#### **Reproductive toxicity**

Classified based on available data. For more details, see section 2

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

Classified based on available data. For more details, see section 2

#### **Specific target organ toxicity - repeated exposure Aspiration hazard**

Classified based on available data. For more details, see section 2

---

## SECTION 12: Ecological information

### **Ecotoxicity**

#### **Components:**

#### **Toluene:**

##### **Toxicity to fish**

LC50 (Oncorhynchus kisutch (coho salmon)): 5.5 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)

##### **Toxicity to daphnia and other aquatic invertebrates**

EC50 (Ceriodaphnia dubia (water flea)): 3.78 mg/l End point: mortality Exposure time: 48 h Analytical monitoring: yes Method: US-EPA

##### **Toxicity to fish (Chronic toxicity)**

NOEC (Oncorhynchus kisutch (coho salmon)): 1.39 mg/l End point: Growth inhibition Exposure time: 40 d Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)

##### **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

NOEC (Ceriodaphnia dubia (water flea)): 0.74 mg/l End point: reproduction rate Exposure time: 7 d Analytical monitoring: yes Method: US-EPA

##### **Toxicity to microorganisms**

EC50 (Bacteria): 84 mg/l Exposure time: 24 h Test Type: static test Remarks: (ECHA)

#### **2,2'-dimethyl-2,2'-azodipropionitrile:**

##### **Toxicity to fish**

LC50 (Danio rerio (zebra fish)): > 100 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes

##### **Toxicity to daphnia and other aquatic invertebrates**

EC50 (Daphnia magna (Water flea)): > 367 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes

##### **Toxicity to algae/aquatic plants**

ErC50 (Pseudokirchneriella subcapitata): 4.5 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes

##### **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

NOEC (Daphnia magna (Water flea)): 2.2 mg/l Exposure time: 21 d Test Type: semi-static test Analytical monitoring: yes Method: OECD Test

Guideline 202 GLP: yes

#### **Toxicity to microorgan- isms**

EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

#### **Ecotoxicology Assessment**

##### **Chronic aquatic toxicity**

Harmful to aquatic life with long lasting effects.

##### **Persistence and degradability**

##### **Components:**

##### **Toluene:**

##### **Biodegradability**

aerobic Result: Readily biodegradable. Biodegradation: 86 % Exposure time: 20 d Remarks: (IUCLID)

##### **2,2'-dimethyl-2,2'-azodipropiononitrile:**

##### **Biodegradability**

aerobic Concentration: 15 mg/l Result: Not readily biodegradable. Biodegradation: < 10 % Exposure time: 28 d Method: OECD Test Guideline 301B GLP: yes

##### **Bioaccumulative potential**

##### **Components:**

##### **Toluene:**

##### **Bioaccumulation**

Species: Leuciscus idus (Golden orfe) Bioconcentration factor (BCF): 90 Exposure time: 3 d Concentration: 0.05 mg/l

##### **Partition coefficient: noctanol/water**

log Pow: 2.73 (20 °C) pH: 7 Remarks: Bioaccumulation is not expected.

##### **2,2'-dimethyl-2,2'-azodipropiononitrile:**

##### **Partition coefficient: noctanol/water**

log Pow: 1.1 (25 °C) pH: 6.3 - 6.5 Method: OECD Test Guideline 107 GLP: yes Remarks: Bioaccumulation is not expected.

##### **Mobility in soil**

No data available

##### **Other adverse effects**

No data available

---

## SECTION 13: Disposal considerations

### **Disposal methods**

### **Waste from residues**

Offer surplus and non-recyclable solutions to a licensed disposal company.

---

## SECTION 14: Transport information

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1294

Proper shipping name : Toluene solution

Class : 3

Packing group : II

Labels : Class 3 - Flammable liquids

Packing instruction (cargo aircraft) : 364

Packing instruction (passenger aircraft) : 353

#### IMDG-Code

UN number : UN 1294

Proper shipping name : TOLUENE SOLUTION

Class : 3

Packing group : II

Labels : 3

EmS Code : F-E, S-D

Marine pollutant : no

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### National Regulations

#### JT/T 617

UN number : UN 1294

Proper shipping name : TOLUENE

Class : 3

Packing group : II

Labels : 3

Environmentally hazardous : no

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

---

## SECTION 15: Regulatory information

## **National regulatory information**

**Law on the Prevention and Control of Occupational Diseases**

**Regulations on Safety Management of Hazardous Chemicals**

**Catalogue of Hazardous Chemicals**

Listed

**Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)**

**No. / Code Chemical name / Category Threshold quantity**

**W5.3 Flammable liquids 1,000 t**

**Hazardous Chemicals for Priority Management**

Listed under SAWS

**Catalogue of Specially Controlled Hazardous**

Not listed Chemicals

**List of Explosive Precursors**

Not listed

**List of Toxic and Hazardous Soil Pollutants**

Listed

**Regulations on Labour Protection in Workplaces where Toxic Substances are Used**

**Catalogue of Highly Toxic Chemicals**

Listed

**Regulation of Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

**China Severely Restricted Toxic Chemicals for Import and Export**

Not listed

**Regulation on the Administration of Precursor Chemicals**

**Catalogue and Classification of Precursor Chemicals**

Listed

**Regulations on the Administration of Controlled Chemicals**

**List of Controlled Chemicals**

Not listed

## **Regulations of Ozone Depleting Substances Management**

### **List of Controlled Ozone Depleting Substances**

Not listed

### **List of Controlled Ozone Depleting Substances Import and Export**

Not listed

## **Environmental Protection Law**

### **List of Priority Controlled Chemicals**

Listed

### **List of Key Controlled New Pollutants**

Not listed

---

## **SECTION 16: Other information**

### **Full text of other abbreviations**

#### **ACGIH**

USA. ACGIH Threshold Limit Values (TLV)

#### **ACGIH BEI**

ACGIH - Biological Exposure Indices (BEI)

#### **CN BEI**

China. Biological Occupational Exposure Indices

#### **GBZ 2.1-2007**

Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

#### **ACGIH / TWA**

8-hour, time-weighted average

#### **GBZ 2.1-2007 / PC-TWA**

Permissible concentration - time weighted average

#### **GBZ 2.1-2007 / PC-STEL**

Permissible concentration - short term exposure limit

**GBZ 2.1-2007 / MAC AIC - Australian Invent Transport by Land of Bra bw - Body weight; CMR Standard of the German List**

**(Canada); ECx - Conc associated with x%respo Chemical Substances (Jap response; ERG - Emerge GLP - Good Laboratory P**

**cer; IATA - International Construction and Equipm Half maximal inhibitory c tion; IECSC - Inventory o tional Maritime Dangerou**

**Industrial Safety and H Standardisation; KECl - K tration to 50 % of a test (Median Lethal Dose); MA lution from Ships; MERC of**

**Dangerous Goods; n.o. - No Observed (Adverse) fect Level; NOELR - No Norm; NTP - National Toxi cals; OECD - Organisatio fice**

**of Chemical Safety a and Toxic substance; PIC stances; (Q)SAR - (Quant (EC) No 1907/2006 of th Registration, Evaluation,**

**Accelerating Decompositi Chemical Substance Inve Thailand Existing Chemicala States); UN - United Nat Transport of Dangerous**

**WHMIS - Workplace Hazar**

Maximum allowable concentration ry of Industrial Chemicals

ANTT - National Agency for il  
 ASTM - American Society for the Testing of Materials  
 - Carcinogen, Mutagen or Reproductive Toxicant  
 DIN nstitute for Standardisation  
 DSL - Domestic Substances ntration associated with x% response  
 ELx - Loading rate se  
 EmS - Emergency Schedule  
 ENCS - Existing and New n)  
 ErCx - Concentration associated with x% growth rate cy Response Guide  
 GHS - Globally Harmonised System  
 actice  
 IARC - International Agency for Research on Can- ir Transport Association  
 IBC - International Code for the nt of Ships carrying Dangerous Chemicals in Bulk  
 IC50 ncentration  
 ICAO - International Civil Aviation Organiza- Existing Chemical Substances in China  
 IMDG - Interna- Goods  
 IMO - International Maritime Organisation  
 ISHL alth Law (Japan)  
 ISO - International Organisation for rea Existing Chemicals Inventory  
 LC50 - Lethal Concenopulation  
 LD50 - Lethal Dose to 50% of a test population POL - International Convention for the Prevention of Pol- SUR - The Agreement for the  
 Facilitation of the Transport . - Not Otherwise Specified  
 Nch - Chilean Norm  
 NO(A)EC ffect Concentration  
 NO(A)EL - No Observed (Adverse) Efbserveable Effect Loading Rate  
 NOM - Official Mexican ology Program  
 NZIoC - New Zealand Inventory of Chemfor Economic Co-operation and Development  
 OPPTS - Ofd Pollution Prevention  
 PBT - Persistent, Bioaccumulative S - Philippines Inventory of Chemicals and Chemical Subtative) Structure Activity Relationship  
 REACH - Regulation European Parliament and of the Council concerning the uthorisation and Restriction of Chemicals  
 SADT - Selfn Temperature  
 SDS - Safety Data Sheet  
 TCSI - Taiwan tory  
 TDG - Transportation of Dangerous Goods  
 TECI s Inventory  
 TSCA - Toxic Substances Control Act (United ons  
 UNRTDG - United Nations Recommendations on the oods  
 vPvB - Very Persistent and Very Bioaccumulative  
 ous Materials Information System

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.

