

alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 11/7/2018 Revision date: 11/12/2019 Version: 1.2

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

1.1. Product identifier

Product form	: Substance
Substance name	: alpha,alpha-Azoisobutyronitrile
Chemical name	: 2,2'-dimethyl-2,2'-azodipropionitrile; ADZN
IUPAC name	: 2-[(E)-2-(1-cyano-1-methylethyl)diazen-1-yl]-2-methylpropanenitrile
EC Index-No.	: 608-019-00-1
EC-No.	: 201-132-3
CAS-No.	: 78-67-1
Product code	: 55532989
Formula	: C8H12N4
Product group	: Raw material

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

1.2.1. Relevant identified uses

Main use category	: Laboratory use,Industrial use,Professional use
Industrial/Professional use spec	: For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Scafell Organics
Molekula Ltd
Lingfield Way
Darlington - England
T +44 (0) 1949 823777 / +44 (0) 7590 545705
info@molekula.com / kbowen@molekula.com - www.molekula.com

1.4. Emergency telephone number

Emergency number : +44 (0) 7590 545705

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Self-Reactive Substances and Mixtures, Type C	H242
Acute toxicity (inhal.), Category 4	H332
Acute toxicity (oral), Category 4	H302
Hazardous to the aquatic environment — Chronic Hazard, Category 3	H412
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H242 - Heating may cause a fire.
H332 - Harmful if inhaled.
H302 - Harmful if swallowed.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 - Avoid breathing dust, fume.
P280 - Wear protective clothing, eye protection, face protection, protective gloves.
P301+P312 - IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P315 - Get immediate medical advice/attention.
P403+P235 - Store in a well-ventilated place. Keep cool.

alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%
alpha,alpha-Azoisobutyronitrile	(CAS-No.) 78-67-1 (EC-No.) 201-132-3 (EC Index-No.) 608-019-00-1	100

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If possible show this sheet, if not available show packaging or label. Do not leave affected person unattended.
First-aid measures after inhalation	: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. If experiencing respiratory symptoms: Get medical advice/attention.
First-aid measures after skin contact	: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Do not remove clothing if it sticks to the skin. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention.

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

Symptoms/effects after inhalation	: Harmful if inhaled. Inhalation may cause irritation (cough, short breathing, difficulty in breathing). More severe symptoms are also possible.
Symptoms/effects after skin contact	: May cause moderate irritation. irritation (itching, redness, blistering). Harmful in contact with skin.
Symptoms/effects after eye contact	: May cause eye irritation. redness, itching, tears.
Symptoms/effects after ingestion	: Swallowing this material may result in health hazard. Symptoms of ingestion include drowsiness, weakness, headache, dizziness, nausea, vomiting. More severe symptoms are also possible.

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

Get immediate medical advice/attention.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Sand.
Unsuitable extinguishing media	: Do NOT use water jet.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Flammable solid.
Explosion hazard	: May form flammable/explosive vapour-air mixture.
Hazardous decomposition products in case of fire	: Carbon oxides (CO, CO ₂). Nitrogen oxides.

5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: seal off low-lying areas. Keep container tightly closed and away from heat, sparks and flame. Keep away from combustible materials.
Firefighting instructions	: Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. Use extinguishing agent suitable for surrounding fire.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Warn all persons of toxic hazard.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Isolate from fire, if possible, without unnecessary risk. No flames, no sparks. Eliminate all sources of ignition. Avoid dust formation.
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6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
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alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Emergency procedures	: Evacuate unnecessary personnel. Mark out the contaminated area with signs and prevent access to unauthorized personnel. Avoid contact with skin, eyes and clothing. Do not breathe dust. Do not touch or walk on the spilled product.
Measures in case of dust release	: Keep upwind. Ventilate the area thoroughly, especially low lying areas (basements, workpits etc).

6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection. Use self-contained breathing apparatus and chemically protective clothing.
Emergency procedures	: Ventilate area. Stop leak if safe to do so. All equipment used when handling the product must be grounded. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: On land, sweep or shovel into suitable containers. Minimise generation of dust. Store away from other materials.
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6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Provide local exhaust or general room ventilation. Avoid creating or spreading dust.
Hygiene measures	: Take off immediately all contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. Always wash hands after handling the product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Ensure adequate ventilation, especially in confined areas. Proper grounding procedures to avoid static electricity should be followed.
Storage conditions	: Keep only in the original container in a cool, well ventilated place away from : Direct sunlight. Keep container closed when not in use.
Incompatible products	: Strong oxidisers. Strong acids. alkalis.
Incompatible materials	: Sources of ignition. Direct sunlight. Heat sources. open flames. sparks.
Storage temperature	: 2 - 8 °C
Heat and ignition sources	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Storage area	: Store in a dry place. Store in a closed container. Keep away from combustible materials.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

alpha,alpha-Azoisobutyronitrile (78-67-1)

United Kingdom	WEL TWA (mg/m ³)	5 mg/m ³
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alpha,alpha-Azoisobutyronitrile (78-67-1)

DNEL/DMEL (Workers)

Acute - systemic effects, inhalation	199 mg/m ³
Long-term - systemic effects, dermal	194.17 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	140 µg/m ³

DNEL/DMEL (General population)

Acute - systemic effects, inhalation	99.56 mg/m ³
Long-term - systemic effects, oral	10 µg/kg bodyweight/day
Long-term - systemic effects, inhalation	70 µg/m ³
Long-term - systemic effects, dermal	97.08 mg/kg bodyweight/day

PNEC (Water)

PNEC aqua (freshwater)	150 µg/L
PNEC aqua (marine water)	15 µg/L

alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

alpha,alpha-Azoisobutyronitrile (78-67-1)	
PNEC aqua (intermittent, freshwater)	150 µg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	912 µg/kg dw
PNEC sediment (marine water)	91.2 µg/kg dw
PNEC (Soil)	
PNEC soil	94.4 µg/kg dw
PNEC (STP)	
PNEC sewage treatment plant	100 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure that there is a suitable ventilation system. Do not breathe dust. Handle in accordance with good industrial hygiene and safety procedures.

Personal protective equipment:

Wear recommended personal protective equipment. Avoid all unnecessary exposure.

Materials for protective clothing:
Wear suitable protective clothing, gloves and eye/face protection

Hand protection:

The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374. The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0.11		EN 374

Eye protection:

Chemical goggles or safety glasses. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Use eye protection according to EN 166, designed to protect against powders and dusts.

Type	Use	Characteristics	Standard
Safety goggles, Face shield	Fine dust, Dust	tightly fitting safety goggles, With side shields	EN 166

Skin and body protection:

Wear suitable protective clothing. Emergency safety showers should be available in the immediate vicinity of any potential exposure. Keep suitable chemically resistant protective clothing readily available for emergency use

Type	Standard
Total impervious protective suits, gloves, and boots must be worn to prevent any contact with the product, Flame retardant antistatic protective clothing	EN ISO 13982

Respiratory protection:

Self contained breathing apparatus, in case of emergency. Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Keep self contained breathing apparatus readily available for emergency use.

Device	Filter type	Condition	Standard
Respiratory protective device with a particle filter	Type P3	Dust protection	EN 14387

Environmental exposure controls:

Avoid release to the environment.

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid.

alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Molecular mass	: 164.2 g/mol
Colour	: white.
Odour	: No data available.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 102 - 104 °C
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable
Vapour pressure	: 0.01 hPa at 25 °C
Relative vapour density at 20 °C	: No data available
Relative density	: 1.11 g/cm ³
Solubility	: soluble in water. Water: 350 g/l at 25 °C
Log Pow	: 1.1 at 25 °C
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable solid.

10.2. Chemical stability

Flammable solid. In use may form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions

Stable under normal conditions of use.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from sunlight.

10.5. Incompatible materials

Strong oxidizers. Strong acids. alkalis.

10.6. Hazardous decomposition products

No hazardous decomposition products known at room temperature. Thermal decomposition generates : Carbon oxides (CO, CO₂). Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Oral: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Inhalation: Harmful if inhaled.

alpha,alpha-Azoisobutyronitrile (78-67-1)

LC50 inhalation rat (mg/l)	> 7.78 mg/l 1 h
Skin corrosion/irritation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Respiratory or skin sensitisation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met

alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Reproductive toxicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-single exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-repeated exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Potential adverse human health effects and symptoms	: Harmful if swallowed. Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water	: Harmful to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Harmful to aquatic life with long lasting effects.

12.2. Persistence and degradability

alpha,alpha-Azoisobutyronitrile (78-67-1)

Persistence and degradability	No data available.
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12.3. Bioaccumulative potential

alpha,alpha-Azoisobutyronitrile (78-67-1)

Log Pow	1.1 at 25 °C
Bioaccumulative potential	No data available.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

alpha,alpha-Azoisobutyronitrile (78-67-1)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.
Additional information	: Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information




In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3234	3234	3234	3234	3234
14.2. UN proper shipping name				
SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED	Self-reactive solid type c, temperature controlled	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED

alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Transport document description				
UN 3234 SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED (alpha,alpha-Azoisobutyronitrile), 4.1, (D)	UN 3234 SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED (alpha,alpha-Azoisobutyronitrile), 4.1	UN 3234 Self-reactive solid type c, temperature controlled (alpha,alpha-Azoisobutyronitrile), 4.1	UN 3234 SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED (alpha,alpha-Azoisobutyronitrile), 4.1	UN 3234 SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED (alpha,alpha-Azoisobutyronitrile), 4
14.3. Transport hazard class(es)				
4.1	4.1	4.1	4.1	4.1
		Not applicable		Not applicable
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				
14.6. Special precautions for user				

Overland transport

Classification code (ADR)	: SR2
Special provisions (ADR)	: 194, 274
Limited quantities (ADR)	: 0
Excepted quantities (ADR)	: E0
Packing instructions (ADR)	: P520
Special packing provisions (ADR)	: PP21
Mixed packing provisions (ADR)	: MP2
Transport category (ADR)	: 1
Special provisions for carriage - Packages (ADR)	: V8
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV15, CV20, CV21, CV22
Special provisions for carriage - Operation (ADR)	: S4, S8, S17
Tunnel restriction code (ADR)	: D
EAC code	: 1WE

Transport by sea

Special provisions (IMDG)	: 194, 274, 923
Packing instructions (IMDG)	: P520
Special packing provisions (IMDG)	: PP21
EmS-No. (Fire)	: F-F
EmS-No. (Spillage)	: S-K
Stowage category (IMDG)	: D
Stowage and handling (IMDG)	: SW1, SW3
Segregation (IMDG)	: SG35, SG36
Properties and observations (IMDG)	: May explode at temperatures higher than the emergency temperature or in a fire. Burns vigorously. Insoluble in water except: 3-METHYL-4-(PYRROLIDN-1-YL) BENZENE DIAZONIUM TETRAFLUOROBORATE TETRAMINE PALLADIUM (II) NITRATE Contact with alkalis or acids may cause dangerous decomposition. The products of combustion or self-accelerating decomposition may be toxic by inhalation. Control and emergency temperatures for each formulation can be found in 2.4.2.3.2.3. The temperatures should be checked regularly.

Air transport

PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden

alpha,alpha-Azoisobutyronitrile

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

CAO packing instructions (IATA) : Forbidden
CAO max net quantity (IATA) : Forbidden
ERG code (IATA) : 3S

Inland waterway transport

Classification code (ADN) : SR2
Special provisions (ADN) : 194, 274
Limited quantities (ADN) : 0
Excepted quantities (ADN) : E0
Equipment required (ADN) : PP
Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : SR2
Limited quantities (RID) : 0
Carriage prohibited (RID) : Yes

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
alpha,alpha-Azoisobutyronitrile is not on the REACH Candidate List
alpha,alpha-Azoisobutyronitrile is not on the REACH Annex XIV List
Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

Full text of H- and EUH-statements:	
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Self-react. C	Self-Reactive Substances and Mixtures, Type C
H242	Heating may cause a fire.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H412	Harmful to aquatic life with long lasting effects.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.