Isoamyl nitrite

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

1.1. Product identifier
Trade name/designation:

Isoamyl nitrite

*
1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture:
Intermediate for the chemical industry
Restricted to professional users.

1.3. Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor):

Valsynthese S. A.
Société Suisse des Explosifs Group
Fabrikstrasse 48
3900 Brig
Switzerland
Telephone: +41 27 922 71 11
Telefax: +41 27 922 72 00
E-mail: info@valsynthese.ch
Website: www.valsynthese.ch

E-mail (competent person): msds@sse-group.com

1.4. Emergency telephone number

United States of America: Poison control center - national hotline number 1-800-222-1222
Great Britain: National phone number 111
Belgium: Centre antipoisons +32 070 245 245 / Bulgaria: +359 2 9154 233 / Croatia: +3851 2348 342 / Cyprus: +357 1401 / Czech Republic: +420 224 919 293, +420 224 915 402 / Denmark: +45 82 12 12 12 / Estonia: +372 16662, +372 7943 794 / Finland: +358 09 471 77 / France: numéro ORFILA (INRS) : +33 (0)1 45 42 59 59 / Greece: +30 21077 93777 / Hungary: +36 80 201 199 (24 hours) / Ireland: +353 (1) 809 2166 / Italy: +39 06 4997800 / Lithuania: +370 (85) 2362052 / Luxembourg: +352 8002 5500 / The Nederlands: +31 (0) 30 274 8888 / Norway: +47 22 59 13 00 / Portugal: +351 800 250 250 / Romania: +402 213 183 606 / Slovakia: +421 2 5477 4166 / Spain: National Emergency Telephone Number: +34 91 562 04 20 / Sweden: +46 112 (emergency 24 hours), +46 08-331231 (monfri 9.00-17.00).
European Union: Call 112 if no specific phone number available., +41 27 922 71 11 (Only available during office hours.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Hazard classes and hazard categories	Hazard statements	Classification procedure
flammable liquids *(Flam. Liq. 2)*	H225: Highly flammable liquid and vapour.	Calculation method.
Acute toxicity (oral) *(Acute Tox. 4)*	H302: Harmful if swallowed.	Calculation method.
Skin corrosion/irritation *(Skin Corr. 1B)*	H314: Causes severe skin burns and eye damage.	Calculation method.
Respiratory or skin sensitisation *(Skin Sens. 1)*	H317: May cause an allergic skin reaction.	Calculation method.
Serious eye damage/eye irritation *(Eye Dam. 1)*	H318: Causes serious eye damage.	Calculation method.
Acute toxicity (inhalative) *(Acute Tox. 4)*	H332: Harmful if inhaled.	Calculation method.

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Hazard classes and hazard categories	Hazard statements	Classification procedure
Germ cell mutagenicity *(Muta. 2)*	H341: Suspected of causing genetic defects.	Calculation method.

*
2.2. Label elements

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

Hazard pictograms:

GHS02
Flame

GHS05
Corrosion

GHS07
Exclamation mark

GHS08
Health hazard

Signal word: Danger

Hazard statements for physical hazards	
H225	Highly flammable liquid and vapour.

Hazard statements for health hazards	
H302 + H332	Harmful if swallowed or if inhaled.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.

Precautionary statements Prevention	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe vapours and spray.
P280	Wear protective gloves/eye protection.

Precautionary statements Response	
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary statements Storage	
P405	Store locked up.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous ingredients / Hazardous impurities / Stabilisers:

Product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 110-46-3 EC No.: 203-770-8 REACH No.: 01-2120830162-68-0000	**''amyl nitrite'', mixed isomers** Acute Tox. 4 (H302, H332), Flam. Liq. 2 (H225), Muta. 2 (H341), Skin Corr. 1B (H314), Skin Sens. 1 (H317) Danger	60 – ≤ 100 weight-%

Full text of H- and EUH-phrases: see section 16.

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SECTION 4: First aid measures

4.1. Description of first aid measures

General information:
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove victim out of the danger area. Remove contaminated, saturated clothing. If unconscious but breathing normally, place in recovery position and seek medical advice. Do not leave affected person unattended. Warning First aider: Pay attention to self-protection!

Following inhalation:
Provide fresh air. In case of respiratory tract irritation, consult a physician.

In case of skin contact:
After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

After eye contact:
In case of contact with eyes, rinse immediately thoroughly with plenty of edible oil and consult an ophthalmologist.

Following ingestion:
Rinse mouth. Let water be drunken in little sips (dilution effect). Do NOT induce vomiting. Get immediate medical advice/attention.

Self-protection of the first aider:
Use personal protection equipment. No direct artificial respiration to be given by first aider.

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

Skin corrosion/irritation. Allergic reactions. Serious eye damage/eye irritation.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Water spray jet, alcohol resistant foam, Extinguishing powder, Carbon dioxide (CO2)

Unsuitable extinguishing media:
Full water jet

5.2. Special hazards arising from the substance or mixture

Combustible, Formation of explosive mixtures with:air

Hazardous combustion products:
Carbon monoxide, Carbon dioxide (CO2), Nitrogen oxides (NOx)

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

5.4. Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Personal precautions:
Remove persons to safety.Keep away from sources of ignition - No smoking.

Protective equipment:
Wear protective gloves/protective clothing/eye protection/face protection.

6.1.2. For emergency responders

Personal protection equipment:
Personal protection equipment: see section 8

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6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment:

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Provide for retaining containers, e.g. floor pan without outflow.

For cleaning up:

Water (with cleaning agent)

6.4. Reference to other sections

Safe handling: see section 7 Personal protection equipment: see section 8 Disposal: see section 13

6.5. Additional information

Use appropriate container to avoid environmental contamination.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Protective measures

Advices on safe handling:

Wear personal protection equipment (refer to section 8). Use closed equipment if possible.Use only antistatically equipped (spark-free) tools.

Fire prevent measures:

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge.

Advices on general occupational hygiene

When using do not eat, drink or smoke. Avoid contact with eyes and skin.

* 7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Keep container tightly closed in a cool, well-ventilated place.Protect from heat and direct sunlight.Keep away from sources of ignition - No smoking. The accumulation in lowlying or closed rooms can cause increased danger of fire and explosion.

Packaging materials:

Keep/Store only in original container.

Requirements for storage rooms and vessels:

Recommended storage temperature: 2-8 °C. Store in a dark room, product is sensitive to light. Moisture-sensitive. Air-sensitive.

Hints on storage assembly:

Do not store together with: strong acids and alkalis, Alcohols, Oxidizing agent, Reducing agent

Storage class (TRGS 510, Germany): 3 – Flammable liquids

Further information on storage conditions:

Storage in the chemical cabinet. Quantities above 100 kg: Storage room with adequate explosion protection.

7.3. Specific end use(s)

No data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No data available

* 8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations.

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8.2.2. Personal protection equipment

Eye/face protection:
Eye glasses with side protection EN 166

Skin protection:
Wear multi layer protective glove based on fluor or brombutyle rubber according to EN 374. Min. layer thickness: 0.6 mm.. Breakthrough time: >8h. Wear anti-static footwear and clothing. Wear protective clothes against chemical agents in accordance to EN 340 / EN 14605.

Respiratory protection:
In exceptional situations (e.g. unintentional release of substances) it is necessary to wear respiratory protection. Respiratory protection according to EN 136 or EN 140 with filter ABEK-P3.

8.2.3. Environmental exposure controls
No data available

SECTION 9: Physical and chemical properties

*
9.1. Information on basic physical and chemical properties

Appearance

Physical state: Liquid
Colour: colourless
Odour: not determined

Safety relevant basis data

Parameter	Value	at °C	① Method ② Remark
pH	*not determined*		
Melting point	*not determined*		
Freezing point	*not determined*		
Initial boiling point and boiling range	99.2 °C		
Decomposition temperature	*not determined*		
Flash point	< 3 °C		
Evaporation rate	*not determined*		
Auto-ignition temperature	*not determined*		
Upper/lower flammability or explosive limits	*not determined*		
Vapour pressure	3.5 kPa	20 °C	
Vapour density	*not determined*		
Density	0.88 g/cm³	20 °C	
Relative density	*not determined*		
Bulk density	*not applicable*		
Water solubility	poorly soluble		
Partition coefficient: n-octanol/water	2.77	20 °C	
Dynamic viscosity	*not determined*		
Kinematic viscosity	*not determined*		

9.2. Other information
No data available

SECTION 10: Stability and reactivity

10.1. Reactivity
Highly flammable liquid and vapour.

10.2. Chemical stability
Unstable and decomposition in air, light or water.

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10.3. Possibility of hazardous reactions
Forms an explosive mixture with air or oxygen at room temperature and may explode if ignited.

10.4. Conditions to avoid
Heat, Light, air

10.5. Incompatible materials
Oxidizing agent, strong base, Acids, Alcohols

10.6. Hazardous decomposition products
No known hazardous decomposition products.

SECTION 11: Toxicological information

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

''amyl nitrite'', mixed isomers CAS No.: 110-46-3 EC No.: 203-770-8
LD_{50} oral: 505 mg/kg (Rat)
LC_{50} Acute inhalation toxicity (vapour): 3.426 mg/L (Rat)

Acute oral toxicity:
Harmful if swallowed.

Acute dermal toxicity:
Based on available data, the classification criteria are not met.

Acute inhalation toxicity:
Harmful if inhaled.

Skin corrosion/irritation:
Causes severe skin burns and eye damage.

Serious eye damage/irritation:
Causes serious eye damage.

Respiratory or skin sensitisation:
May cause an allergic skin reaction.

Germ cell mutagenicity:
Suspected of causing genetic defects.

Carcinogenicity:
Based on available data, the classification criteria are not met.

Reproductive toxicity:
Based on available data, the classification criteria are not met.

STOT-single exposure:
Based on available data, the classification criteria are not met.

STOT-repeated exposure:
Based on available data, the classification criteria are not met.

Aspiration hazard:
Based on available data, the classification criteria are not met.

Additional information:
No data available

*
11.2. Information on other hazards

Endocrine disrupting properties:
This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

SECTION 12: Ecological information

12.1. Toxicity

Aquatic toxicity:
Classification criteria for damage to aquatic organisms not met..

12.2. Persistence and degradability
No data available

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12.3. Bioaccumulative potential
Partition coefficient: n-octanol/water:
2.77 at °C: 20

12.4. Mobility in soil
No data available

12.5. Results of PBT and vPvB assessment

''amyl nitrite'', mixed isomers CAS No.: 110-46-3 EC No.: 203-770-8
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

*
12.6. Endocrine disrupting properties
This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Do not allow to enter into surface water or drains. Hand over the product, including partially emptied packaging, to an authorised hazardous waste disposal company or a hazardous waste collection point.

13.1.1. Product/Packaging disposal

Waste codes/waste designations according to EWC/AVV
Waste code product

07 01 04 *	other organic solvents, washing liquids and mother liquors

**: Evidence for disposal must be provided.*

Remark:
Wastecode according to regulation EU 2014/955

Waste code packaging

15 01 10 *	packaging containing residues of or contaminated by dangerous substances

**: Evidence for disposal must be provided.*

Remark:
Waste codes/waste designations according to EWC/AVV

Waste treatment options
Appropriate disposal / Package:
Residues of the product and packaging have to be collected as hazardous waste.

SECTION 14: Transport information

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1. UN number or ID number			
UN 1113	UN 1113	UN 1113	UN 1113
14.2. UN proper shipping name			
AMYL NITRITE	AMYL NITRITE	AMYL NITRITE	AMYL NITRITE
14.3. Transport hazard class(es)			
 3	 3	 3	 3
14.4. Packing group			
II	II	II	II
14.5. Environmental hazards			
No	No	No	No

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Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.6. Special precautions for user			
Limited quantity (LQ): 1 L **Excepted Quantities (EQ):** E2 **Hazard identification number (Kemler No.):** 33 **Classification code:** F1 **Tunnel restriction code:** (D/E)	**Limited quantity (LQ):** 1 L **Excepted Quantities (EQ):** E2 **Classification code:** F1	**Limited quantity (LQ):** 1 L **Excepted Quantities (EQ):** E2 **EmS-No.:** F-E, S-D	**Limited quantity (LQ):** 1 L **Excepted Quantities (EQ):** E2

14.7. Maritime transport in bulk according to IMO instruments

No data available

SECTION 15: Regulatory information

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

No data available

15.2. Chemical Safety Assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

16.1. Indication of changes

1.2.	Relevant identified uses of the substance or mixture and uses advised against
2.2.	Label elements
7.2.	Conditions for safe storage, including any incompatibilities
8.2.	Exposure controls
9.1.	Information on basic physical and chemical properties
11.2.	Information on other hazards
12.6.	Endocrine disrupting properties
15.1.	Safety, health and environmental regulations/legislation specific for the substance or mixture

16.2. Abbreviations and acronyms

ADN European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR European agreement concerning the international carriage of dangerous goods by road
CAS Chemical Abstract Service
CLP Classification, labelling and Packaging
EC_{50} Effective Concentration 50%
EN European norm
IATA International Air Transport Association
IMDG-Code International Maritime Dangerous Goods Code
LC_{50} Lethal Concentration 50%
LD_{50} Lethal Dose 50%
OECD Organization for Economic Cooperation and Development
PBT persistent, bioaccumulative, toxic
PNEC Predicted No Effect Concentration
REACH Registration, Evaluation and Authorization of Chemicals
RID Regulations concerning the international carriage of dangerous goods by rail
SVHC Substance of Very High Concern
UN United Nations

VOC Volatile organic compounds
vPvB very persistent, very bioaccumulative

16.3. Key literature references and sources for data
Inventory of substances of the European Chemical Agency (ECHA). GESTIS database

16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Hazard classes and hazard categories	Hazard statements	Classification procedure
flammable liquids *(Flam. Liq. 2)*	H225: Highly flammable liquid and vapour.	Calculation method.
Acute toxicity (oral) *(Acute Tox. 4)*	H302: Harmful if swallowed.	Calculation method.
Skin corrosion/irritation *(Skin Corr. 1B)*	H314: Causes severe skin burns and eye damage.	Calculation method.
Respiratory or skin sensitisation *(Skin Sens. 1)*	H317: May cause an allergic skin reaction.	Calculation method.
Serious eye damage/eye irritation *(Eye Dam. 1)*	H318: Causes serious eye damage.	Calculation method.
Acute toxicity (inhalative) *(Acute Tox. 4)*	H332: Harmful if inhaled.	Calculation method.
Germ cell mutagenicity *(Muta. 2)*	H341: Suspected of causing genetic defects.	Calculation method.

16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements	
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H341	Suspected of causing genetic defects.

16.6. Training advice
Persons charged with the handling and cleaning of the product must be trained prior to start their work and in regular intervals. They must be informed about the risks using the product and the mesures to take for efficient prevention. This concerns particularly working security, first aid, health and environment protection.

16.7. Additional information
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 madeup material.

* Data changed compared with the previous version.