

# Safety data sheet

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BASF Safety data sheet according to UN GHS 4th rev.

Date / Revised: 07.10.2021

Version: 1.0

Product: **Versamine® K-12**

(ID no. 30791899/SDS\_GEN\_00/EN)

Date of print 15.05.2024

## 1. Identification

### Product identifier

## Versamine® K-12

Chemical name: 1,2-Ethanediamine, N,N'-bis(1,3-dimethylbutylidene)-

CAS Number: 25707-70-4

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

Relevant identified uses: Polymer, Hardener for coating materials or adhesives for industrial or professional use, polymers for inks, varnishes or coatings

### Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Global Business Unit Resins and Additives

Telephone: +49 621 60-72509

E-mail address: ed-psr@basf.com

### Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

## 2. Hazards Identification

### Classification of the substance or mixture

According to UN GHS criteria

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Flam. Liq. 4  
Acute Tox. 4 (oral)  
Acute Tox. 4 (Inhalation - mist)  
Skin Corr./Irrit. 1C  
Eye Dam./Irrit. 1  
Resp. Sens. 1  
Skin Sens. 1

For the classifications not written out in full in this section the full text can be found in section 16.

## Label elements

### Globally Harmonized System (GHS)

Pictogram:



Signal Word:  
Danger

Hazard Statement:

H227	Combustible liquid.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H314	Causes severe skin burns and eye damage.
H302 + H332	Harmful if swallowed or if inhaled

Precautionary Statements (Prevention):

P280	Wear protective gloves, protective clothing and eye protection or face protection.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe dust/gas/mist/vapours.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P284	In case of inadequate ventilation wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.

Precautionary Statements (Response):

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P310	Immediately call a POISON CENTER or physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): Remove or Take off immediately all contaminated clothing. Rinse skin with water or shower.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use foam or dry powder for extinction.

Precautionary Statements (Storage):

P405	Store locked up.
P403	Store in a well-ventilated place.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.
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### Other hazards

According to UN GHS criteria

No specific dangers known, if the regulations/notes for storage and handling are considered.

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## 3. Composition/Information on Ingredients

### Substances

Chemical nature

Contains: Hardener, epoxy resin

Hazardous ingredients (GHS)

According to UN GHS criteria

Ethylenediamine

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Content (W/W):  $\geq 1\%$  -  $< 3\%$   
CAS Number: 107-15-3  
EC-Number: 203-468-6  
INDEX-Number: 612-006-00-6

Flam. Liq. 3  
Acute Tox. 4 (Inhalation - vapour)  
Acute Tox. 4 (oral)  
Acute Tox. 3 (dermal)  
Skin Corr./Irrit. 1B  
Eye Dam./Irrit. 1  
Resp. Sens. 1B  
Skin Sens. 1B  
Aquatic Acute 3  
Aquatic Chronic 3  
H226, H311, H334, H317, H314, H302 + H332,  
H402, H412

**4-Methylpentan-2-one**

Content (W/W):  $\geq 1\%$  -  $< 3\%$   
CAS Number: 108-10-1  
EC-Number: 203-550-1  
INDEX-Number: 606-004-00-4

Flam. Liq. 2  
Acute Tox. 4 (Inhalation - vapour)  
Eye Dam./Irrit. 2A  
STOT SE 3 (irr. to respiratory syst.)  
Acute Tox. 5 (oral)  
Asp. Tox. 2  
H225, H319, H332, H303, H305, H335  
EUH066

**N,N'-Bis(1,3-dimethylbutylidene)ethylenediamine**

Content (W/W):  $\geq 75\%$  -  $\leq 100\%$   
CAS Number: 25707-70-4  
EC-Number: 247-196-6

Acute Tox. 4 (oral)  
Acute Tox. 4 (Inhalation - mist)  
Skin Corr./Irrit. 1C  
Eye Dam./Irrit. 1  
H314, H302 + H332

For the classifications not written out in full in this section the full text can be found in section 16.

**Mixtures**

Not applicable

**4. First-Aid Measures****Description of first aid measures**

Immediately remove contaminated clothing.

If inhaled:

If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

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On skin contact:  
Wash thoroughly with soap and water

On contact with eyes:  
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:  
Rinse mouth and then drink 200-300 ml of water. Do not induce vomiting unless told to by a poison control center or doctor.

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

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11., (Further) symptoms and / or effects are not known so far

### **Indication of any immediate medical attention and special treatment needed**

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

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## **5. Fire-Fighting Measures**

### **Extinguishing media**

Suitable extinguishing media:  
dry powder, foam

### **Special hazards arising from the substance or mixture**

harmful vapours

Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

### **Advice for fire-fighters**

Special protective equipment:  
Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

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## **6. Accidental Release Measures**

### **Personal precautions, protective equipment and emergency procedures**

Use personal protective clothing. Breathing protection required.

### **Environmental precautions**

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Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

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

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material. Dispose of absorbed material in accordance with regulations.

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## **7. Handling and Storage**

### **Precautions for safe handling**

Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:

Sources of ignition should be kept well clear. Take precautionary measures against static discharges. If delivered in plastic packing, highest permissible emptying temperature is 5 Kelvin below the flash point.

### **Conditions for safe storage, including any incompatibilities**

Segregate from alcohols. Segregate from oxidants. Segregate from peroxides. Segregate from acids.

Suitable materials for containers: Carbon steel (Iron), HDPE fluorinated

Further information on storage conditions: Keep container tightly closed and in a cool place.

Protect from temperatures below: 10 °C

Protect from temperatures above: 55 °C

### **Specific end use(s)**

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

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## **8. Exposure Controls/Personal Protection**

### **Control parameters**

Components with occupational exposure limits

107-15-3: Ethylenediamine

108-10-1: 4-Methylpentan-2-one

### **Exposure controls**

Personal protective equipment

Respiratory protection:

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Suitable respiratory protection for lower concentrations or short-term effect: Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Hand protection:

Chemical resistant protective gloves (EN ISO 374-1)

Suitable materials for short-term contact (recommended: At least protective index 2, corresponding > 30 minutes of permeation time according to EN ISO 374-1)

butyl rubber (butyl) - 0.7 mm coating thickness

nitrile rubber (NBR) - 0.4 mm coating thickness

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Tightly fitting safety goggles (cage goggles) (e.g. EN 166) and face shield.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

#### General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

## 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

Form:	liquid	
Colour:	yellow	
Odour:	amine-like	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
pH value:	alkaline, The statements are based on the properties of the individual components.	
Freezing point:	not determined	
Boiling point:	100 °C	
Flash point:	74,5 °C	(ASTM D93)
Evaporation rate:	not determined	
Flammability:	Combustible liquid.	(derived from flash point)

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Lower explosion limit:	For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Ignition temperature:	not determined	
Vapour pressure:	not determined	
Density:	0,8509 g/cm <sup>3</sup> (15 °C) 0,8472 g/cm <sup>3</sup> (20 °C) 0,8202 g/cm <sup>3</sup> (55 °C)	
Relative density:	No data available.	
Relative vapour density (air):	not determined	
Solubility in water:	not determined	
Solubility (qualitative) solvent(s):	alcohols soluble	
Partitioning coefficient n-octanol/water (log Kow):	not applicable for mixtures	
Self ignition:	not self-igniting	Test type: Spontaneous self-ignition at room-temperature.
Thermal decomposition:	not determined	
Viscosity, kinematic:	2 - 6 mm <sup>2</sup> /s (25 °C)	
Explosion hazard:	not explosive	
Fire promoting properties:	not fire-propagating	

### Other information

Self heating ability:	Study scientifically not justified.
SADT:	Not a substance/mixture liable to self-decomposition according to GHS.
Miscibility with water:	not soluble
Hygroscopy:	Non-hygroscopic
Surface tension:	No data available.
Grain size distribution:	The substance / product is marketed or used in a non solid or granular form.



## 10. Stability and Reactivity

### Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

### Chemical stability

The product is chemically stable.

### Possibility of hazardous reactions

No hazardous reactions when stored and handled according to instructions.

### Conditions to avoid

See SDS section 7 - Handling and storage.

### Hazardous decomposition products

Hazardous decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

Experimental/calculated data:

LD50 rat (oral): 300 - < 2.000 mg/kg

The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

LC50 rat (by inhalation): > 0,5 - < 1 mg/l 4 h

The product has not been tested. The statement has been derived from the properties of the individual components.

LD50 rat (dermal):

not determined

#### Irritation

Experimental/calculated data:

Skin corrosion/irritation rabbit: Corrosive.

The product has not been tested. The statement has been derived from the properties of the individual components.

Serious eye damage/irritation rabbit: irreversible damage

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The product has not been tested. The statement has been derived from the properties of the individual components.

#### Respiratory/Skin sensitization

Experimental/calculated data:

guinea pig: skin sensitizing (OECD Guideline 406)

The product has not been tested. The statement has been derived from the properties of the individual components.

guinea pig: respiratory sensitizing (other)

The product has not been tested. The statement has been derived from the properties of the individual components.

#### Germ cell mutagenicity

Assessment of mutagenicity:

No data available.

#### Carcinogenicity

Assessment of carcinogenicity:

No data available.

#### Reproductive toxicity

Assessment of reproduction toxicity:

No data available.

#### Developmental toxicity

Assessment of teratogenicity:

Based on the ingredients, there is no suspicion of a teratogenic effect.

#### Specific target organ toxicity (single exposure)

Remarks: No data available.

#### Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

No data available.

#### Aspiration hazard

No aspiration hazard expected.

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## 12. Ecological Information

### Toxicity

Toxicity to fish:

LC50 (96 h) > 100 mg/l, Fish (other)

The product has not been tested. The statement has been derived from the properties of the individual components.

Aquatic invertebrates:

LC50 (48 h), daphnia (other)

not determined

Aquatic plants:

EC50 (72 h), algae (other)

not determined

Microorganisms/Effect on activated sludge:

EC50 (0,5 h), bacteria (other)

not determined

Chronic toxicity to fish:

No data available.

Chronic toxicity to aquatic invertebrates:

No data available.

Assessment of terrestrial toxicity:

No data available concerning terrestrial toxicity.

### Persistence and degradability

Assessment biodegradation and elimination (H<sub>2</sub>O):

The product is biodegradable.

### Bioaccumulative potential

Assessment bioaccumulation potential:

The product has not been tested.

### Mobility in soil

Assessment transport between environmental compartments:

Volatility: No data available.

### Additional information

Add. remarks environm. fate & pathway:

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Treatment in biological waste water treatment plants has to be performed according to local and administrative regulations.

Other ecotoxicological advice:  
Do not discharge product into the environment without control.

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## 13. Disposal Considerations

### Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

Contaminated packaging:  
Uncontaminated packaging can be re-used.  
Packs that cannot be cleaned should be disposed of in the same manner as the contents.

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## 14. Transport Information

### Land transport

ADR

UN number	UN2735
UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (contains N,N'-BIS(1,3-DIMETHYLBUTYLIDENE)ETHYLENEDIAMINE, ETHYLENEDIAMINE)
Transport hazard class(es):	8
Packing group:	III
Environmental hazards:	no
Special precautions for user:	Tunnel code: E

RID

UN number	UN2735
UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (contains N,N'-BIS(1,3-DIMETHYLBUTYLIDENE)ETHYLENEDIAMINE, ETHYLENEDIAMINE)
Transport hazard class(es):	8
Packing group:	III
Environmental hazards:	no
Special precautions for user:	None known

### Inland waterway transport

ADN

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UN number: UN2735  
 UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains N,N'-BIS(1,3-DIMETHYLBUTYLIDENE)ETHYLENEDIAMINE, ETHYLENEDIAMINE)  
 Transport hazard class(es): 8  
 Packing group: III  
 Environmental hazards: no  
 Special precautions for user: None known

Transport in inland waterway vessel

Not evaluated

**Sea transport**

## IMDG

UN number: UN 2735  
 UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains N,N'-BIS(1,3-DIMETHYLBUTYLIDENE)ETHYLENEDIAMINE, ETHYLENEDIAMINE)  
 Transport hazard class(es): 8  
 Packing group: III  
 Environmental hazards: no  
 Marine pollutant: NO  
 Special precautions for user: None known

**Air transport**

## IATA/ICAO

UN number: UN 2735  
 UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (contains N,N'-BIS(1,3-DIMETHYLBUTYLIDENE)ETHYLENEDIAMINE, ETHYLENEDIAMINE)  
 Transport hazard class(es): 8  
 Packing group: III  
 Environmental hazards: No Mark as dangerous for the environment is needed  
 Special precautions for user: None known

**Transport in bulk according to Annex II of MARPOL and the IBC Code**

Regulation: Not evaluated  
 Shipment approved: Not evaluated  
 Pollution name: Not evaluated

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Pollution category: Not evaluated  
Ship Type: Not evaluated

## 15. Regulatory Information

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

Not applicable

## 16. Other Information

Full text of classifications, hazard symbols and hazard statements, if mentioned in section 2 or 3:

Flam. Liq.	Flammable liquids
Acute Tox.	Acute toxicity
Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
Resp. Sens.	Respiratory sensitization
Skin Sens.	Skin sensitization
Aquatic Acute	Hazardous to the aquatic environment - acute
Aquatic Chronic	Hazardous to the aquatic environment - chronic
STOT SE	Specific target organ toxicity — single exposure
Asp. Tox.	Aspiration hazard
H226	Flammable liquid and vapour.
H311	Toxic in contact with skin.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H314	Causes severe skin burns and eye damage.
H302 + H332	Harmful if swallowed or if inhaled
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H303	May be harmful if swallowed.
H305	May be harmful if swallowed and enters airways.
H335	May cause respiratory irritation.
EUH066	Repeated exposure may cause skin dryness or cracking.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.