

# Safety Data Sheet

according to UN GHS (ST/SG/AC.10/11/Rev.10)

## NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE

Revision date: 02.04.2025

Product code: 317400

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

#### 1.1. Product identifier

NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE

Substance name: NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE  
CAS No: 3658-77-3

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

##### Use of the substance/mixture

For Flavour use for food and feed only

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

Company name: Axxence Aromatic GmbH  
Street: Tackenweide 28  
Place: D-46446 Emmerich am Rhein  
Telephone: + 49 2822 68561 0  
E-mail: info@axxence.com  
Contact person: Safety Team  
E-mail: safety-documentation@axxence.com  
Internet: www.axxence.de  
Responsible Department: Safety Management  
Telefax: + 49 2822 68561 39  
Telephone: + 49 2822 68561 0

#### 1.4. Emergency telephone number:

+49 2822 68561 99

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### UN GHS (ST/SG/AC.10/11/Rev.10)

Acute toxicity: Acute Tox. 4 (oral)  
Skin corrosion/irritation: Skin Corr. 1B  
Serious eye damage/eye irritation: Eye Dam. 1  
Respiratory or skin sensitisation: Skin Sens. 1A  
Hazardous to the aquatic environment: Aquatic Acute 2

#### 2.2. Label elements

##### UN GHS (ST/SG/AC.10/11/Rev.10)

Signal word: Danger

Pictograms:



##### Hazard statements

H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H401 Toxic to aquatic life.

##### Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash hands thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing

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P301+P330+P331	protection.
P317	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352	Get medical help.
P333+P317	IF ON SKIN: Wash with plenty of Wash with plenty of water/soap..
P354	If skin irritation or rash occurs: Get medical help.
P361	Immediately rinse with water for several minutes.
P362+P364	Take off immediately all contaminated clothing.
P304+P340	Take off contaminated clothing and wash it before reuse.
P316	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P354+P338	Get emergency medical help immediately.
P317	IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405	Get medical help.
P501	Store locked up.
	Dispose of contents/container to organic waste.

### 2.3. Other hazards

No information available.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Sum formula:	C6 H8 O3
Molecular weight:	128,13 g/mol

### Relevant ingredients

CAS No	Chemical name	Quantity
	Classification (UN GHS (ST/SG/AC.10/11/Rev.10))	
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE	100 %
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1A, Aquatic Acute 2; H302 H314 H318 H317 H401	

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down.

#### After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice.

#### After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary.

#### After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

#### After ingestion

Rinse mouth immediately and drink 1 glass of of water. Do NOT induce vomiting. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately. Do not allow a neutralisation agent to be drunk.

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

No information available.

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

Treat symptomatically.

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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

##### Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

#### 5.2. Special hazards arising from the substance or mixture

Non-flammable.

#### 5.3. Advice for firefighters

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

##### Additional information

Suppress gases/vapours/mists with water spray jet. 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

##### General advice

Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

#### 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 cleaning up

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal.

##### Other information

Take up mechanically. Treat the recovered material as prescribed in the section on waste disposal.

#### 6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

##### Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid dust formation. Do not breathe dust.

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

No special fire protection measures are necessary.

##### Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.

Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary.

When using do not eat, drink, smoke, sniff.

#### 7.2. Conditions for safe storage, including any incompatibilities

##### Requirements for storage rooms and vessels

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations.

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### Hints on joint storage

No special measures are necessary.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

### 8.2. Exposure controls



### Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe dust.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Suitable eye protection: goggles.

#### Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Suitable gloves type: Disposable gloves + NBR (Nitrile rubber)

#### Skin protection

Use of protective clothing.

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state:	crystalline
Colour:	
Melting point/freezing point:	75 - 82 °C
Boiling point or initial boiling point and boiling range:	230 °C
Flammability:	not determined not applicable
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Flash point:	N/A
Auto-ignition temperature:	N/A
Decomposition temperature:	not determined
pH-Value:	not determined
Water solubility: (at 20 °C)	2500 g/l
Solubility in other solvents	
not determined	
Partition coefficient n-octanol/water:	0,95
Vapour pressure:	not determined
Density:	not determined

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Relative vapour density:

not determined

### 9.2. Other information

#### Information with regard to physical hazard classes

Explosive properties

not explosive according to EU A.14

Oxidizing properties

The product is not: oxidising.

#### Other safety characteristics

Evaporation rate:

not determined

Solid content:

100,00 %

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

No known hazardous reactions.

### 10.4. Conditions to avoid

none

### 10.5. Incompatible materials

No information available.

### 10.6. Hazardous decomposition products

No known hazardous decomposition products.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity

Harmful if swallowed.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE				
	oral	LD50 mg/kg	1608	Mouse	REACH registration OECD Guideline 401

#### Irritation and corrosivity

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

Serious eye damage/eye irritation: Causes serious eye damage.

#### Sensitising effects

May cause an allergic skin reaction. (NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE)

#### Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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.

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### Aspiration hazard

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

### 11.2. Information on other hazards

#### Endocrine disrupting properties

No information available.

### Further information

This substance is classified as hazardous according to Regulation (EC) No 1272 (2008).

## SECTION 12: Ecological information

### 12.1. Toxicity

The product is not: Ecotoxic.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE					
	Acute algae toxicity	ErC50	194 mg/l	72 h	Desmodesmus subspicatus	REACH Registration
	Acute crustacea toxicity	EC50	6,8 mg/l	48 h	Daphnia magna (Big water flea)	REACH Registration
						OECD 201
						OECD 202

### 12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE			
		67%	7	REACH Registration
	Biodegradable.			
		96%	28	REACH Registration
	Biodegradable.			

### 12.3. Bioaccumulative potential

The product has not been tested.

### Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE	0,95

### 12.4. Mobility in soil

The product has not been tested.

### 12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

### 12.7. Other adverse effects

No information available.

### Further information

Avoid release to the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Disposal recommendations

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

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### Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled.

## SECTION 14: Transport information

### Marine transport (IMDG)

**14.1. UN number or ID number:** UN 1759  
**14.2. UN proper shipping name:** CORROSIVE SOLID, N.O.S.  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
Hazard label: 8



Special Provisions: 274  
Limited quantity: 1 kg  
Excepted quantity: E2  
EmS: F-A, S-B

### Air transport (ICAO-TI/IATA-DGR)

**14.1. UN number or ID number:** UN 1759  
**14.2. UN proper shipping name:** CORROSIVE SOLID, N.O.S.  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** II  
Hazard label: 8



Special Provisions: A3 A803  
Limited quantity Passenger: 5 kg  
Passenger LQ: Y844  
Excepted quantity: E2  
IATA-packing instructions - Passenger: 859  
IATA-max. quantity - Passenger: 15 kg  
IATA-packing instructions - Cargo: 863  
IATA-max. quantity - Cargo: 50 kg

### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

### 14.6. Special precautions for user

Warning: strongly corrosive.

### 14.7. Maritime transport in bulk according to IMO instruments

not applicable

## SECTION 15: Regulatory information

### National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).  
Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

## SECTION 16: Other information

### Changes

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This data sheet contains changes from the previous version in section(s): 2,4,5,6,7,8,9,11,14,15,16.

### Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route  
(European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service  
LC50: Lethal concentration, 50%  
LD50: Lethal dose, 50%  
CLP: Classification, labelling and Packaging  
REACH: Registration, Evaluation and Authorization of Chemicals  
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals  
UN: United Nations  
DNEL: Derived No Effect Level  
DMEL: Derived Minimal Effect Level  
PNEC: Predicted No Effect Concentration  
ATE: Acute toxicity estimate  
LL50: Lethal loading, 50%  
EL50: Effect loading, 50%  
EC50: Effective Concentration 50%  
ErC50: Effective Concentration 50%, growth rate  
NOEC: No Observed Effect Concentration  
BCF: Bio-concentration factor  
PBT: persistent, bioaccumulative, toxic  
vPvB: very persistent, very bioaccumulative  
RID: Regulations concerning the international carriage of dangerous goods by rail  
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation  
intérieures)  
EmS: Emergency Schedules  
MFAG: Medical First Aid Guide  
ICAO: International Civil Aviation Organization  
MARPOL: International Convention for the Prevention of Marine Pollution from Ships  
IBC: Intermediate Bulk Container  
VOC: Volatile Organic Compounds  
SVHC: Substance of Very High Concern  
For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>  
For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety  
assessment, chapter R.20 (Table of terms and abbreviations).

### Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.