

Safety Data Sheet

according to Regulation (EC) No 1907/2006

NATURAL 4-HDROXY-2,5-DIMETHYL-3(2H)- FURANONE 20% IN PG

Revision date: 09.01.2023

Product code: 317430

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

1.1. Product identifier

NATURAL 4-HDROXY-2,5-DIMETHYL-3(2H)- FURANONE 20% IN PG

UFI: QT3C-0WWE-W00Y-2YXE

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	Telefax: + 49 2822 68561 39
e-mail:	info@axxence.com	
Contact person:	Andreas Goertz	Telephone: + 49 2822 68561 37
e-mail:	andreas.goertz@axxence.com	
Internet:	www.axxence.de	
Responsible Department:	QM - Regulatory Affairs	

1.4. Emergency telephone number:

+49 2822 68561 99

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin Corr. 1B; H314
 Eye Dam. 1; H318
 Skin Sens. 1; H317

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

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

Signal word: Danger

Pictograms:



Hazard statements

H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash thoroughly after handling.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P302+P352 IF ON SKIN: Wash with plenty of Wash with plenty of water/soap..

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<p>P303+P361+P353 P333+P313 P362+P364 P304+P340 P310 P305+P351+P338 P310 P405 P501</p>	<p>IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. Store locked up. Dispose of contents/container to .</p>
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2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
57-55-6	PROPYLENE GLYCOL			77,5 - 80 %
	200-338-0		01-2119456809-23	
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE			20 - 22,5 %
	222-908-8			
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1A; H302 H314 H318 H317			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
57-55-6	200-338-0	PROPYLENE GLYCOL	77,5 - 80 %
	dermal: LD50 = 20800 mg/kg; oral: LD50 = 22000 mg/kg		
3658-77-3	222-908-8	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE	20 - 22,5 %
	oral: LD50 = 1608 mg/kg		

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.

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After ingestion

Rinse mouth immediately and drink 1 glass 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.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.
Extinguishing powder / Carbon dioxide (CO₂) / Water spray jet

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. Do not breathe gas/fumes/vapour/spray. 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

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

Other information

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). 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. Do not breathe gas/fumes/vapour/spray.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

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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. Take off contaminated clothing. Wash hands before breaks and after work. 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.

Hints on joint storage

No special measures are necessary.

7.3. Specific end use(s)

For Flavour use for food and feed only

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL values

CAS No	Name of agent			
DNEL type	Exposure route	Effect	Value	
57-55-6	PROPYLENE GLYCOL			
Worker DNEL, long-term	inhalation	systemic	168 mg/m ³	
Worker DNEL, long-term	inhalation	local	10 mg/m ³	
Consumer DNEL, long-term	inhalation	systemic	50 mg/m ³	
Consumer DNEL, long-term	inhalation	local	10 mg/m ³	

PNEC values

CAS No	Name of agent	
Environmental compartment	Value	
57-55-6	PROPYLENE GLYCOL	
Freshwater	260 mg/l	
Freshwater (intermittent releases)	183 mg/l	
Marine water	26 mg/l	
Freshwater sediment	572 mg/kg	
Marine sediment	57,2 mg/kg	
Micro-organisms in sewage treatment plants (STP)	20000 mg/l	
Soil	50 mg/kg	

8.2. Exposure controls



Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

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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.

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:	Liquid	
Colour:	light yellow	
Odour:	characteristic	
Melting point/freezing point:		not determined
Boiling point or initial boiling point and boiling range:		>184 °C
Flammability		
Solid/liquid:		not applicable
Gas:		not applicable
Lower explosion limits:		not determined
Upper explosion limits:		not determined
Flash point:		>104 °C
Auto-ignition temperature:		not determined
Decomposition temperature:		not determined
pH-Value:		not determined
Water solubility: (at 20 °C)		~800 g/L
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:		not determined
Vapour pressure: (at 20 °C)		0,11 hPa
Vapour pressure: (at 50 °C)		1,81 hPa
Density:		1,09 g/cm ³
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

Solvent content: 80%

Solid content: 20,00 %

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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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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

ATEmix calculated

ATE (oral) 8040,0 mg/kg

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
57-55-6	PROPYLENE GLYCOL				
	oral	LD50 22000 mg/kg	Rat	REACH registration	
	dermal	LD50 20800 mg/kg	Rabbit	GESTIS	
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE				
	oral	LD50 1608 mg/kg	Mouse	REACH registration	OECD Guideline 401

Irritation and corrosivity

Causes severe skin burns and eye damage.

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

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.

11.2. Information on other hazards

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Endocrine disrupting properties

No information available.

Further information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
57-55-6	PROPYLENE GLYCOL					
	Acute fish toxicity	LC50 mg/l	40613	96 h	Oncorhynchus mykiss (Rainbow trout)	REACH registration Guideline: Environment Canada (1990)
	Acute algae toxicity	ErC50 mg/l	19000	96 h	Pseudokirchneriella subcapitata	REACH registration OECD 201
	Acute crustacea toxicity	EC50 mg/l	18340	48 h	Ceriodaphnia spec	REACH registration EPA 600/4-90/0-27
	Algae toxicity	NOEC mg/l	15000	14 d	Pseudokirchneriella subcapitata	REACH registration OECD 201
	Crustacea toxicity	NOEC mg/l	13020	7 d	Ceriodaphnia spec	REACH registration
	Acute bacteria toxicity	(EC50 mg/l)	>20000	0 h	Pseudomonas putida	REACH registration German guideline published in: "Bewertun
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 OECD 201
	Acute crustacea toxicity	EC50	6,8 mg/l	48 h	Daphnia magna (Big water flea)	REACH Registration OECD 202

12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
57-55-6	PROPYLENE GLYCOL			
	OECD 301F	98,3%	28	REACH registration
	Readily biodegradable (according to OECD criteria).			
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
57-55-6	PROPYLENE GLYCOL	-1,07
3658-77-3	NATURAL 4-HYDROXY-2,5-DIMETHYL-3(2H)-FURANONE	0,95

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BCF

CAS No	Chemical name	BCF	Species	Source
57-55-6	PROPYLENE GLYCOL	0,09		REACH registration

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

The product has not been tested.

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 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.

List of Wastes Code - residues/unused products

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances; hazardous waste

List of Wastes Code - used product

160305 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; off-specification batches and unused products; organic wastes containing hazardous substances; hazardous waste

List of Wastes Code - contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

Contaminated packaging

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

SECTION 14: Transport information

Land transport (ADR/RID)

<u>14.1. UN number or ID number:</u>	UN 1760
<u>14.2. UN proper shipping name:</u>	CORROSIVE LIQUID, N.O.S.
<u>14.3. Transport hazard class(es):</u>	8
<u>14.4. Packing group:</u>	II
Hazard label:	8



Classification code:	C9
Special Provisions:	274
Limited quantity:	1 L
Excepted quantity:	E2
Transport category:	2

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Hazard No: 80
Tunnel restriction code: E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1760
14.2. UN proper shipping name: CORROSIVE LIQUID, N.O.S.
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8



Classification code: C9
 Special Provisions: 274
 Limited quantity: 1 L
 Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 1760
14.2. UN proper shipping name: CORROSIVE LIQUID, N.O.S.
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8



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

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1760
14.2. UN proper shipping name: CORROSIVE LIQUID, 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: 0.5 L
 Passenger LQ: Y840
 Excepted quantity: E2
 IATA-packing instructions - Passenger: 851
 IATA-max. quantity - Passenger: 1 L
 IATA-packing instructions - Cargo: 855
 IATA-max. quantity - Cargo: 30 L

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

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not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

2010/75/EU (VOC): 80 % (872 g/l)

2004/42/EC (VOC): 100 % (1090 g/l)

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

Additional information

To follow: 850/2004/EC, 79/117/EEC, 689/2008/EC

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 1 - slightly hazardous to water

Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2,4,5,6,7,8,9,11,13,14,15,16.

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

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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).

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

Classification	Classification procedure
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method

Relevant H and EUH statements (number and full text)

H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.

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.

Identified uses

No	Short title	LCS	SU	PC	PROC	ERC	AC	TF	Specification
1		-	4	28	-	-	-	-	Flavour

LCS: Life cycle stages

SU: Sectors of use

PC: Product categories

PROC: Process categories

ERC: Environmental release categories

AC: Article categories

TF: Technical functions

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)