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

1.1. Product identifier
Product name: Cosine
Product form: Mixture
Type of formulation: Emulsion, oil in water (EW)
Active Ingredient: Cyfluifenamid
Composition code: NI 022 C0058

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

2.1. Relevant identified uses
Main use category: Plant protection product for professional use. Horticulture.
Use of the substance/mixture: Fungicide.

1.2.2. Uses advised against
No additional information available.

1.3. Details of the supplier of the safety data sheet
Supplier:
Nisso Chemical Europe GmbH
Berliner Allee 42
40212 Düsseldorf, Germany.
T.: +49(0) 211 130 66 86 0
F.: +49(0) 211 328231
sds@nisso-chem.de

Distributor:
Suite 5, 3 Riverside
Granta Park
Great Abington
Cambridgeshire CB21 6AD
United Kingdom
Tel: +44 (0)845 373 0305
Fax: +44 (0)1223 891210
Email: certis@certiseurope.co.uk
Website: www.certiseurope.co.uk

1.4. Emergency telephone number
Emergency number: Certis Carechem24 multilingual 24 hours emergency number: +44 (0) 870 190 6777.
For advice on medical emergencies, fires, spillages or chemical hazards only – phone: 0870 190 6777.
For further advice for medical professionals - The National Poisons Information Service: Tel: 0870 600 6266 (UK only) or Dublin Tel: 0035 3 137 99 64/379966.
For further advice for veterinary surgeons: 020 7635 9195.
SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Aquatic Chronic 2  H411

Full text of H-phrases: see section 16.

2.2. Label elements

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

Hazard pictograms (CLP): GHS09

Signal word (CLP): Not signal word.

Hazard statements (CLP): H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP): P273 - Avoid release to the environment. P391 - Collect spillage. P501 - Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste. SP 1 - Do not contaminate water with the product or its container (Do not clean application equipment near surface water/Avoid contamination via drains from farmyards and roads).

EUH phrases: EUH401 - To avoid risks to human health and the environment, comply with the instructions for use. EUH208 - Contains 1,2-Benzisothiazolin-3-one. May produce an allergic reaction.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

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<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
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<td>(CAS No) 180409-60-3</td>
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<td>Aquatic Chronic 1, H410</td>
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<td>(EC index no) -</td>
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<td>Hydrocarbons, C10-C13, aromatics, &lt;1% naphthalene</td>
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<td>(EC index no) -</td>
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<td>Sorbitane trioleate (Anhydro-D-glucitol trioleate)</td>
<td>(CAS No) 26266-58-0</td>
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<td>Skin Irrit. 2, H315, Eye Irrit. 2, H319</td>
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<tr>
<td></td>
<td>(EC no) 247-569-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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</table>
**Name**
Polyoxyethylene oleyl ether (CAS No) 9004-98-2
Poly(oxy-1,2-ethanediyl), a-[2,4,6-tris(1-phenylethyl)phenyl]-w-hydroxy-
Polyoxyethylene tristylylphenylether phosphate
1,2-Benzisothiazole-3-(2H)-one

**Product identifier**
(CAS No) 9004-98-2
(CAS No) 99734-09-5
(CAS No) 90093-37-1
(CAS No) 2634-33-5

**%**
10
5
1
0.2

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Aquatic Acute 1, H400
Aquatic Chronic 1, H410
Eye Irrit. 2, H319
Skin Irrit. 2, H315
Skin Dam. 1, H318
Skin Sens. 1, H317 *
Aquatic Acute 1, H400

*Specific Conc. Limits and M factors: C≥0.05% Skin Sens.1; H317.

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

**SECTION 4: First aid measures**

4.1. **Description of first aid measures**

First-aid measures general: In the event of any complaints or symptoms, avoid further exposure.

First-aid measures after inhalation: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist call a doctor.

First-aid measures after skin contact: IF ON SKIN: Wash with plenty of soap and water. Remove contaminated clothing and shoes.
If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist.

First-aid measures after ingestion: IF SWALLOWED: Immediately call a POISON CENTER or doctor. Never give anything by mouth to an unconscious person.

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

Symptoms/injuries: No data 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: Water spray
Dry chemical powder
Alcohol resistant foam
Carbon dioxide (CO₂).

Unsuitable extinguishing media: Not known.

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

Fire hazard: Combustion or thermal decomposition may generate toxic vapours: carbon dioxide, carbon monoxide, hydrogen fluoride and nitrogen oxides.
5.3. Advice for firefighters

Firefighting instructions

Exercise caution when fighting any chemical fire.

Fight fire from safe distance and protected location.

Do not breathe fumes.

Cool closed containers exposed to fire with water spray.

If possible, take the containers out of dangerous zone.

Contain fire-fighting water with dikes or absorbents to prevent migration and entry into sewers or streams.

Protection during firefighting

Wear suitable protective clothing, gloves, eye/face protection and respiratory protection.

Wear a self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Protective equipment

Wear suitable protective clothing, gloves and eye or face protection.

Emergency procedures

Evacuate area.

Ensure adequate ventilation.

Avoid direct contact with the substance.

Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Keep away from all ignitions sources.

Avoid breathing the mist or vapour.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

Notify the authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up

Clean up any spills as soon as possible, using an absorbent material to collect it. For large quantities: remove with vacuum truck. For small quantities: e.g. sand or vermiculite.

Once absorbed collect spilled material with shovels, buckets and place in closed containers and label properly.

Wash spill site with soap and plenty of water after material pick-up is complete.

Remove as chemical waste, according to national or local legislation.

In the event of major spillage: contact an expert.

6.4. Reference to other sections

Reference to other sections (8, 13).

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

Read label before use.

Avoid contact with eyes, skin, nose and mouth.

Wear suitable protective clothing, gloves and eye/face protection.

Opened containers must be carefully closed and kept upright to avoid leakage.

Do not breathe mist or vapour.
Hygiene measures: Always wash your hands immediately after handling this product, and once again before leaving the workplace.

Contaminated work clothing should not be allowed out of the workplace.

Do not eat, drink or smoke when using this product.

Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Provide adequate ventilation.

Store in a cool, dry, well-ventilated place.

Storage conditions: Prevent unauthorised access.

Keep locked up and out of the reach of children.

Keep in original containers, tightly closed.

Keep away from food, drink and animal feedingstuffs.

Protect against frost.

Avoid direct contact with water, acids or bases.

Keep away from heat and direct sunlight.

7.3. Specific end use(s)

Fungicide for agricultural use. Refer to the label.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Control parameters: Active ingredient: TLV/ACGIH not listed.

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.


Hand protection: Wear impervious gloves resistant to chemical. Gloves material; e.g. outside Rubber, Vinyl chloride resin; inside: cotton, rayon.

Eye protection: Safety goggles or a face shield.

Skin and body protection: Protective clothing with long sleeves waterproof and resistant to chemicals. Rubber boots.

Respiratory protection: Wear appropriate respirator for dust / organic vapors.

Hygiene measures: Do not eat, drink or smoke while handling the product.

Clean gloves with soap and water before removing.

Wash hands and face with soap and water before eating, drinking or smoking.

Clean equipment, premises and work clothes regularly.

Work clothing should remain on the work area and stored separately from street clothes.

Environmental exposure controls: Discharge into the environment must be avoided.

Do not contaminate surface and groundwater.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Colour: Off-white to pale yellow.
Odour: Aromatic.
Odour threshold: No data available
pH: No data available
Relative evaporation rate (butylacetate=1): No data available
Melting point: No data available
Freezing point: No data available
Boiling point: 103 °C
Flash point: 112 °C (Cleaveland open cup)
Self ignition temperature: No data available
Decomposition temperature: >140 °C (Cyflufenamid)
Flammability (solid, gas): Ninguno.
Vapour pressure at 20 °C: 3,54 × 10⁻⁵ Pa (Cyflufenamid)
Relative vapour density: No data available
Specific gravity (H₂O = 1): 1.027 (20°C)
Solubility: Insoluble.
Partition Coefficient n-Octanol/H₂O: Log Pow = 4.7 (25°C, pH6.75)
Log Kow: No data available
Viscosity, kinematic: 3.7 x 10⁻⁵ m²/sec (40°C)
Viscosity, dynamic: No data available
Explosive properties: Not explosive.
Oxidising properties: No oxidising properties.
Explosive limits: No data available

Surface tension: 31.9 mN/m (25°C)

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is stable at normal handling and storage conditions.

10.2. Chemical stability
The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions
Hazardous polymerization does not occur. Is not explosive and does not exhibit oxidant properties.

10.4. Conditions to avoid
High temperature.

10.5. Incompatible materials
Strong oxidizing agents, strong acids or bases.

10.6. Hazardous decomposition products
Combustion or thermal decomposition may generate toxic vapours: carbon oxides, nitrogen oxides, methyl sulfide, sulfur dioxide and hydrogen chloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

**CYFLUFENAMID 5% EW**

LD50 oral rat > 5000 mg/kg
**CYFLUFENAMID 5% EW**

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<th>Value</th>
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<td>LD50 dermal rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat</td>
<td>&gt; 4.41 mg/l/4h</td>
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</table>

**Skin Irritation**: Moderate to severe irritation in rabbits.

**Eye Irritation**: Very slight irritation in rabbits.

**Sensitisation**: Not a skin sensitizer in guinea pigs.

**Carcinogenicity**: Not carcinogenic in rats and mice (Cyflufenamid)

**Mutagenicity**:
- Ames test: Negative. (Cyflufenamid)
- Chromosomal aberration test: Negative. (Cyflufenamid)
- Cytogenetic test (mouse lymphoma): Negative (Cyflufenamid)

**Toxicity for reproduction**: Negative (Cyflufenamid)

**Tetragenicity**: Negative in rats and rabbits (Cyflufenamid).

**Chronic Toxicity**: Cyflufenamid
- NOAEL (rat, 2 years) : 4.4 mg/kg/day (male), 5.5 mg/kg/day (female)
- NOAEL (mice, 1.5 years) : 62.8 mg/kg/day (male), 9.0 mg/kg/jour (female)

**Subchronic Toxicity**: Cyflufenamid
- NOAEL (rat, 90 days, repeated dose) : 20.1 mg/kg/day (male), 24.7 mg/kg/day (female)

### SECTION 12: Ecological information

#### 12.1. Toxicity

**CYFLUFENAMID 5% EW**

<table>
<thead>
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<th>Parameter</th>
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<td>LC50 Fishes (Oncorhynchus mykiss)</td>
<td>9.84 mg/l (96 h)</td>
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<tr>
<td>EC50 Daphnia (Daphnia magna)</td>
<td>9.48 mg/l (48 h)</td>
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<tr>
<td>ErC50 Algae (Selenastrum capricornutum)</td>
<td>1.628 mg/l (72h)</td>
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<tr>
<td>Chronic Toxicity for Algae (NOEC)</td>
<td>0.395 mg/l (72h)</td>
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</table>

#### 12.2. Persistence and degradability

**Cyflufenamid (180409-60-3)**

- Persistence and degradability: Not readily biodegradable.

#### 12.3. Bioaccumulative potential

**Cyflufenamid (180409-60-3)**

- BCF: BCF = 528 at 10 μg/L (Mean of 10–28 days)
- Log Pow: Log Pow = 4.7 (25°C, pH 6.75)

#### 12.4. Mobility in soil

**Cyflufenamid**

- Log Koc: 1003 – 2100

#### 12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent and very bioaccumulative (vPvB).

#### 12.6. Other adverse effects

No additional information available
### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste treatment methods:  
1) Waste disposal according to 91/689/EEC in the corresponding versions (hazardous waste).  
2) Consider classifications (European waste catalogue) 02 01 or 07 04.  
3) Consult the appropriate local authorities about special requirement.  
4) Dispose of contents/container in accordance with local/national/international regulations.

### SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

#### 14.1. UN number

UN-No.: 3082

#### 14.2. UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyflufenamid and Polyoxyethylene oleyl ether mixture)

Transport document description: UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyflufenamid and Polyoxyethylene oleyl ether mixture), 9, III, (E)

#### 14.3. Transport hazard class(es)

Class (UN): 9  
Hazard labels (UN): 9

#### 14.4. Packing group

Packing group (UN): III

#### 14.5. Environmental hazards

Dangerous for the environment:

Other information: No supplementary information available.

#### 14.6. Special precautions for user

**14.6.1. Overland transport**

Hazard identification number (Kemler No.): 90  
Orange plates: [90 3082]

**14.6.2. Transport by sea**

No additional information available

**14.6.3. Air transport**

No additional information available

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 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  
Contains no REACH candidate substance
15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No additional information available

SECTION 16: Other information

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<th>Section</th>
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Full text of H- and EUH-phrases:

Acute Tox. 4 (Dermal)  Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation:dust,mist)  Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)  Acute toxicity (oral) Category 4
Aquatic Acute 1  Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 2  Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3  Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1  Aspiration hazard Category 1
Eye Dam. 1  Serious eye damage/eye irritation Category 1
Eye Irrit. 2  Serious eye damage/eye irritation Category 2
Skin Corr. 1B  skin corrosion/irritation Category 1B
Skin Irrit. 2  skin corrosion/irritation Category 2
Skin Sens. 1  Skin sensitisation Category 1
H302  Harmful if swallowed
H304  May be fatal if swallowed and enters airways
H312  Harmful in contact with skin
H314  Causes severe skin burns and eye damage
H315  Causes skin irritation
H317  May cause an allergic skin reaction
H318  Causes serious eye damage
<table>
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<tbody>
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<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life</td>
</tr>
<tr>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects</td>
</tr>
<tr>
<td>H412</td>
<td>Harmful to aquatic life with long lasting effects</td>
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