# SAFETY DATA SHEET

# ZIGNAL®

| Version | Revision Date: | SDS Number: | Date of last issue: - |
|---|---|---|---|
| 4.0 | 06.05.2025 | 50000004 | Date of first issue: 06.05.2025 |

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : ZIGNAL®

**Manufacturer or supplier's details**

Company : FMC QUÍMICA DO BRASIL LTDA.

Address : AVENIDA DR. JOSÉ BONIFÁCIO COUTINHO NOGUEIRA 150 - 1º ANDAR - JARDIM MADALENA, CAMPINAS SP BRASIL
TELEFONE: (19) 2042.4500

Emergency telephone : Brazil: 0800 34 35 450 (24 hours)
+55-2139581449 (CHEMTREC)

Medical Emergency Number : 0800 7010 450

**Recommended use of the chemical and restrictions on use**

Recommended use : Fungicide

Restrictions on use : Use as recommended by the label.

## SECTION 2. HAZARDS IDENTIFICATION

**GHS Classification in accordance with ABNT NBR 14725 Standard**

Acute toxicity (Oral) : Category 5

Acute toxicity (Inhalation) : Category 4

Acute toxicity (Dermal) : Category 5

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 1

Skin sensitization : Sub-category 1B

Reproductive toxicity : Category 2

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

**GHS label elements in accordance with ABNT NBR 14725 Standard**

Hazard pictograms :

Signal Word : DANGER

Hazard Statements : H303 + H313 May be harmful if swallowed or in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H361 Suspected of damaging fertility or the unborn child.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements :

**Prevention:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing mist or vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
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.

**Response:**

P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 + P310 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.
P312 Call a POISON CENTER/ doctor if you feel unwell.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards which do not result in classification**

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

**Components**

| Chemical name | CAS-No. | Classification | Concentration (% w/w) |
|---|---|---|---|
| fluazinam (ISO) | 79622-59-6 | Acute Tox. (Oral), 5<br>Acute Tox. (Inhalation), 4<br>Acute Tox. (Dermal), 5<br>Serious eye damage/eye irritation, 2A<br>Skin Sens., 1A<br>Repr., 2<br>Aquatic Acute, 1<br>Aquatic Chronic, 1 | >= 30 -< 50 |
| Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts | 68425-94-5 | Serious eye damage/eye irritation, 2A<br>Aquatic Acute, 3<br>Aquatic Chronic, 3 | >= 1 -< 2,5 |
| Alcohols, C13-15, branched and linear, ethoxylated | 157627-86-6 | Acute Tox. (Oral), 4<br>Serious eye damage/eye irritation, 1<br>Aquatic Acute, 2<br>Aquatic Chronic, 3 | >= 1 -< 2,5 |
| 1,2-benzisothiazol-3(2H)-one | 2634-33-5 | Acute Tox. (Oral), 4<br>Serious eye damage/eye irritation, 1<br>Skin Sens., 1<br>Aquatic Acute, 1<br>Aquatic Chronic, 2 | >= 0,0025 -< 0,025 |

## SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : Remove to fresh air.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If on clothes, remove clothes.
If on skin, rinse well with water.

| | | |
|---|---|---|
| | | Wash off with soap and plenty of water.<br>Get medical attention immediately if irritation develops and persists. |
| In case of eye contact | : | Small amounts splashed into eyes can cause irreversible tissue damage and blindness.<br>In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.<br>Continue rinsing eyes during transport to hospital.<br>Remove contact lenses.<br>Protect unharmed eye.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist. |
| If swallowed | : | Keep respiratory tract clear.<br>Do NOT induce vomiting.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>Take victim immediately to hospital. |
| Most important symptoms and effects, both acute and delayed | : | Exposure to skin may result in mild symptoms include itching, hives or rash, and skin redness. More severe symptoms include sneezing, itchy watery eyes, and difficulty breathing.<br>May be harmful if swallowed or in contact with skin.<br>Causes skin irritation.<br>May cause an allergic skin reaction.<br>Causes serious eye damage.<br>Harmful if inhaled.<br>Suspected of damaging fertility or the unborn child. |
| Protection of first-aiders | : | Avoid inhalation, ingestion and contact with skin and eyes. |
| Notes to physician | : | Treat symptomatically. |

## SECTION 5. FIRE-FIGHTING MEASURES

| | | |
|---|---|---|
| Suitable extinguishing media | : | Dry chemical, CO2, water spray or regular foam.<br>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | : | Do not spread spilled material with high-pressure water streams.<br>High volume water jet |
| Specific hazards during fire fighting | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : | Fire may produce irritating, corrosive and/or toxic gases.<br>Halogenated compounds<br>Nitrogen oxides (NOx)<br>Carbon oxides<br>Ammonia |

| | | |
|---|---|---|
| Specific extinguishing methods | : | Remove undamaged containers from fire area if it is safe to do so.<br>Use a water spray to cool fully closed containers.<br>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>Collect contaminated fire extinguishing water separately. This must not be discharged into drains.<br>Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |
| Special protective equipment for fire-fighters | : | Firefighters should wear protective clothing and self-contained breathing apparatus. |

## SECTION 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Evacuate personnel to safe areas.<br>Do not touch or walk through the spilled material.<br>If it can be safely done, stop the leak.<br>Use personal protective equipment. |
| Environmental precautions | : | Prevent product from entering drains.<br>Prevent further leakage or spillage if safe to do so.<br>If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up | : | Never return spills in original containers for re-use.<br>Collect as much of the spill as possible with a suitable absorbent material.<br>Pick up and transfer to properly labeled containers.<br>Keep in suitable, closed containers for disposal. |

## SECTION 7. HANDLING AND STORAGE

| | | |
|---|---|---|
| Advice on protection against fire and explosion | : | Normal measures for preventive fire protection. |
| Advice on safe handling | : | Avoid formation of aerosol.<br>Do not breathe vapors/dust.<br>Avoid exposure - obtain special instructions before use.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>Provide sufficient air exchange and/or exhaust in work rooms.<br>To avoid spills during handling keep bottle on a metal tray.<br>Dispose of rinse water in accordance with local and national regulations.<br>Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. |

| | | |
|---|---|---|
| Hygiene measures | : | Avoid contact with skin, eyes and clothing.<br>Do not inhale aerosol.<br>When using do not eat or drink.<br>When using do not smoke.<br>Wash hands before breaks and at the end of workday.<br>Remove and wash contaminated clothing and gloves, including the inside, before re-use. |
| Conditions for safe storage | : | Keep container tightly closed in a dry and well-ventilated place.<br>Containers which are opened must be carefully resealed and kept upright to prevent leakage.<br>Observe label precautions.<br>Electrical installations / working materials must comply with the technological safety standards. |
| Further information on storage conditions | : | The product is stable under normal conditions of warehouse storage.<br>Protect from heat and direct sunlight.<br>Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading “POISON” is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present.<br>A hand wash station should be available. |
| Recommended storage temperature | : | 5 - 30 °C |
| Further information on storage stability | : | No decomposition if stored and applied as directed. |

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

| | | |
|---|---|---|
| Respiratory protection | : | In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit. |
| Hand protection<br>Material | : | Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber. |
| Remarks | : | The suitability for a specific workplace should be discussed with the producers of the protective gloves. |
| Eye protection | : | Eye wash bottle with pure water<br>Tightly fitting safety goggles<br>Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols. |

| | | |
|---|---|---|
| Skin and body protection | : | Impervious clothing<br>Choose body protection according to the amount and concentration of the dangerous substance at the work place. |
| Protective measures | : | Plan first aid action before beginning work with this product.<br>Always have on hand a first-aid kit, together with proper instructions.<br>Wear suitable protective equipment.<br>When using do not eat, drink or smoke.<br>In the context of professional plant protection use as recommended, the end user must refer to the label and the instructions for use. |

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| Physical state | : | liquid |
| Color | : | light yellow, yellowish-brown, beige |
| Odor | : | odorless, aromatic |
| Odor Threshold | : | No data available |
| pH | : | 7,5 - 8,3<br>Concentration: 1 % |
| Melting point/ range | : | not determined |
| Boiling point/boiling range | : | No data available |
| Flash point | : | > 103 °C<br>Method: Pensky-Martens closed cup - PMCC |
| Evaporation rate | : | No data available |
| Flammability (liquids) | : | The product may be combustible. |
| Self-ignition | : | > 400 °C |
| Upper explosion limit / Upper flammability limit | : | not determined |
| Lower explosion limit / Lower flammability limit | : | not determined |
| Vapor pressure | : | 0,0011 Pa (20 °C) |

| | | |
|---|---|---|
| Relative vapor density | : | not determined |
| Relative density | : | 1,28 (20 °C) |
| Density | : | 1,28 g/cm3 (20 °C) |
| Solubility(ies) | | |
| Water solubility | : | Miscible |
| Solubility in other solvents | : | partly miscible<br>Solvent: Methanol<br><br>partly miscible<br>Solvent: hexane |
| Partition coefficient: n-octanol/water | : | Not available for this mixture. |
| Autoignition temperature | : | No data available |
| Decomposition temperature | : | not determined |
| Viscosity | | |
| Viscosity, dynamic | : | 15,5 mPa.s ( 20 °C) |
| Viscosity, kinematic | : | 1094 - 1406 mm2/s |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | Non-oxidizing |
| Molecular weight | : | Not applicable |
| Particle size | : | Not applicable |

## SECTION 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Reactivity | : | No decomposition if stored and applied as directed. |
| Chemical stability | : | No decomposition if stored and applied as directed. |
| Possibility of hazardous reactions | : | No decomposition if stored and applied as directed. |
| Conditions to avoid | : | Avoid extreme temperatures.<br>Avoid formation of aerosol.<br>Heat, flames and sparks.<br>Heating of the mixture may evolve harmful and irritant vapours. |

| | | |
|---|---|---|
| Incompatible materials | : | Avoid strong acids, bases, and oxidizers. |
| Hazardous decomposition products | : | Stable under recommended storage conditions. |

## SECTION 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

May be harmful if swallowed or in contact with skin.
Harmful if inhaled.

Harmful if swallowed, in contact with skin or if inhaled.

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 Oral (Rat, female): > 2.000 mg/kg<br>Method: OECD Test Guideline 425<br>Symptoms: Diarrhea<br>GLP: yes<br>Assessment: The component/mixture is minimally toxic after single ingestion.<br>Remarks: no mortality |
| Acute inhalation toxicity | : | LC50 (Rat, male and female): > 3,56 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist<br>Method: OECD Test Guideline 403<br>Symptoms: Breathing difficulties, piloerection, sneezing<br>GLP: yes<br>Assessment: The component/mixture is moderately toxic after short term inhalation.<br>Remarks: no mortality<br>Highest attainable concentration. |
| Acute dermal toxicity | : | LD50 Dermal (Rat): > 2.000 mg/kg<br>Method: OECD Test Guideline 402<br>Assessment: The component/mixture is minimally toxic after single contact with skin.<br>Remarks: no mortality |

**Components:**

**fluazinam (ISO):**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat, female): > 2.000 mg/kg<br>Method: OECD Test Guideline 425<br>Symptoms: Diarrhea<br>GLP: yes<br>Assessment: The component/mixture is minimally toxic after single ingestion.<br>Remarks: no mortality |
| Acute inhalation toxicity | : | LC50 (Rat, male): 1,32 - 2,13 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist |

Method: OECD Test Guideline 403
Symptoms: Fatality, Breathing difficulties, ataxia
GLP: yes

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The component/mixture is minimally toxic after single contact with skin.
Remarks: no mortality

**Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:**

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

**Alcohols, C13-15, branched and linear, ethoxylated:**

Acute oral toxicity : LD50 (Rat): 500 - 2.000 mg/kg

**1,2-benzisothiazol-3(2H)-one:**

Acute oral toxicity : LD50 (Rat, male and female): 490 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

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

**Product:**

Species : Rabbit
Assessment : Irritating to skin.
Method : OECD Test Guideline 404
GLP : yes

**Components:**

**fluazinam (ISO):**

Species : Rabbit
Assessment : No skin irritation
Method : OECD Test Guideline 404
GLP : yes
Remarks : Minimal effects that do not meet the threshold for classification.

**Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:**

Remarks : No data available

**Alcohols, C13-15, branched and linear, ethoxylated:**

Result : No skin irritation

**1,2-benzisothiazol-3(2H)-one:**

Species : Rabbit
Exposure time : 72 h
Method : OECD Test Guideline 404
Result : No skin irritation

**Serious eye damage/eye irritation**

Causes serious eye damage.
Causes serious eye irritation.

**Product:**

Species : Rabbit
Assessment : Risk of serious damage to eyes.
Method : OECD Test Guideline 405
GLP : yes

**Components:**

**fluazinam (ISO):**

Species : Rabbit
Assessment : Irritating to eyes.
Method : OECD Test Guideline 405
GLP : yes

**Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:**

Result : Eye irritation

**Alcohols, C13-15, branched and linear, ethoxylated:**

Result : Irreversible effects on the eye

**1,2-benzisothiazol-3(2H)-one:**

Species : Bovine cornea
Result : No eye irritation
Method : OECD Test Guideline 437

Species : Rabbit
Result : Irreversible effects on the eye
Method : EPA OPP 81-4

**Respiratory or skin sensitization**

**Skin sensitization**

May cause an allergic skin reaction.

**Skin sensitization**

May cause an allergic skin reaction.

**Respiratory sensitization**

Not classified based on available information.

**Respiratory sensitization**

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

**Product:**

| | | |
|---|---|---|
| Test Type | : | Local lymph node assay (LLNA) |
| Assessment | : | The product is a skin sensitizer, sub-category 1B. |
| Method | : | OECD Test Guideline 429 |
| Result | : | Causes skin sensitization. |
| GLP | : | yes |

**Components:**

**fluazinam (ISO):**

| | | |
|---|---|---|
| Test Type | : | Local lymph node assay (LLNA) |
| Routes of exposure | : | Skin contact |
| Species | : | Mouse |
| Assessment | : | The product is a skin sensitizer, sub-category 1A. |
| Method | : | OECD Test Guideline 429 |
| Result | : | May cause sensitization by skin contact. |
| GLP | : | yes |

**1,2-benzisothiazol-3(2H)-one:**

| | | |
|---|---|---|
| Test Type | : | Maximization Test |
| Species | : | Guinea pig |
| Method | : | OECD Test Guideline 406 |
| Result | : | May cause sensitization by skin contact. |
| | | |
| Species | : | Guinea pig |
| Method | : | FIFRA 81.06 |
| Result | : | May cause sensitization by skin contact. |

**Germ cell mutagenicity**

Not classified based on available information.
Based on available data, the classification criteria are not met.

**Product:**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: Ames test<br>Method: OECD Test Guideline 471<br>Result: negative |
| Genotoxicity in vivo | : | Test Type: Micronucleus test<br>Species: Mouse<br>Result: negative |

**Components:**

**fluazinam (ISO):**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: Ames test<br>Metabolic activation: with and without metabolic activation<br>Result: negative |

| | | |
|---|---|---|
| Genotoxicity in vivo | : | Test Type: Micronucleus test<br>Species: Mouse<br>Result: negative |
| Germ cell mutagenicity - Assessment | : | No genotoxic potential. |

**1,2-benzisothiazol-3(2H)-one:**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: gene mutation test<br>Test system: mouse lymphoma cells<br>Metabolic activation: with and without metabolic activation<br>Method: OECD Test Guideline 476<br>Result: negative<br><br>Test Type: Ames test<br>Method: OECD Test Guideline 471<br>Result: negative<br><br>Test Type: Chromosome aberration test in vitro<br>Method: OECD Test Guideline 473<br>Result: positive |
| Genotoxicity in vivo | : | Test Type: unscheduled DNA synthesis assay<br>Species: Rat (male)<br>Cell type: Liver cells<br>Application Route: Ingestion<br>Exposure time: 4 h<br>Method: OECD Test Guideline 486<br>Result: negative<br><br>Test Type: Micronucleus test<br>Species: Mouse<br>Application Route: Oral<br>Method: OECD Test Guideline 474<br>Result: negative |
| Germ cell mutagenicity - Assessment | : | Weight of evidence does not support classification as a germ cell mutagen. |

**Carcinogenicity**

Not classified based on available information.
Based on available data, the classification criteria are not met.

**Components:**

**fluazinam (ISO):**

| | | |
|---|---|---|
| Carcinogenicity - Assessment | : | Did not show carcinogenic effects in animal experiments. |

**Reproductive toxicity**

Suspected of damaging fertility or the unborn child.
Suspected of damaging fertility or the unborn child.

**Product:**

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

**Components:**

**fluazinam (ISO):**

Effects on fetal development : Species: Rat
Symptoms: Fetal effects., placental abnormalities, fused or incompletely ossified sternebrae, abnormalities of the head bones, not developed renal papillae and distended ureter
Result: Embryotoxic effects and adverse effects on the offspring were detected.

Species: Rat
Symptoms: Fetal effects., Skeletal and visceral variations .
Result: Embryotoxic effects and adverse effects on the offspring were detected.

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility., Some evidence of adverse effects on development, based on animal experiments.

**1,2-benzisothiazol-3(2H)-one:**

Effects on fertility : Species: Rat, male
Application Route: Ingestion
General Toxicity Parent: NOAEL: 18,5 mg/kg body weight
General Toxicity F1: NOAEL: 48 mg/kg body weight
Fertility: NOAEL: 112 mg/kg bw/day
Symptoms: No effects on reproduction parameters.
Method: OPPTS 870.3800
Result: negative

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

**STOT-single exposure**

Not classified based on available information.
Based on available data, the classification criteria are not met.

**Components:**

**fluazinam (ISO):**

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

**STOT-repeated exposure**

Not classified based on available information.
May cause damage to organs (Liver, thymus, Lungs, Pancreas, Uterus (including cervix), eye ball, Central nervous system, Stomach) through prolonged or repeated exposure.

**Product:**

Target Organs : Liver, thymus, Lungs, Pancreas, Uterus (including cervix), eye

ball, Central nervous system, Stomach

Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

**Components:**

**1,2-benzisothiazol-3(2H)-one:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Repeated dose toxicity**

**Components:**

**fluazinam (ISO):**

| | | |
|---|---|---|
| Species | : | Rat |
| LOAEL | : | 41 mg/kg, 500 ppm |
| Application Route | : | Ingestion |
| Exposure time | : | 90 days |
| Target Organs | : | Liver |
| Symptoms | : | Reduced body weight, increased liver weight |

**1,2-benzisothiazol-3(2H)-one:**

| | | |
|---|---|---|
| Species | : | Rat, male and female |
| NOAEL | : | 15 mg/kg |
| Application Route | : | Ingestion |
| Exposure time | : | 28 d |
| Method | : | OECD Test Guideline 407 |
| Symptoms | : | Irritation |

| | | |
|---|---|---|
| Species | : | Rat, male and female |
| NOAEL | : | 69 mg/kg |
| Application Route | : | Ingestion |
| Exposure time | : | 90 d |
| Symptoms | : | Irritation, Reduced body weight |

**Aspiration toxicity**

Not classified based on available information.
Based on available data, the classification criteria are not met.

**Components:**

**fluazinam (ISO):**

The substance does not have properties associated with aspiration hazard potential.

**Experience with human exposure**

**Components:**

**fluazinam (ISO):**

Skin contact : Symptoms: irritant effects, sensitizing effects

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Product:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 0,11 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 0,23 mg/l<br>Exposure time: 48 h<br><br>EC50 (Daphnia similis (Water flea)): 179,09 mg/l<br>Exposure time: 48 h<br>Remarks: Based on data from similar materials |
| Toxicity to algae/aquatic plants | : | EC50 (Desmodesmus subspicatus (green algae)): 0,13 mg/l<br>Exposure time: 96 h<br><br>ErC50 (Lemna gibba (duckweed)): 0,57 mg/l<br>Exposure time: 7 d<br><br>NOEC (Lemna gibba (duckweed)): 0,094 mg/l<br>Exposure time: 7 d<br><br>EC50 (Selenastrum capricornutum (green algae)): > 0,2 mg/l<br>Exposure time: 96 h |
| Toxicity to soil dwelling organisms | : | LC50 (Eisenia fetida (earthworms)): > 1.000 mg/kg<br>Exposure time: 14 d |
| Toxicity to terrestrial organisms | : | LD50 (Apis mellifera (bees)): > 100 µg/bee<br>Exposure time: 48 h<br>End point: Acute oral toxicity<br><br>LD50 (Apis mellifera (bees)): > 100 µg/bee<br>Exposure time: 48 h<br>End point: Acute contact toxicity<br><br>LD50 (Coturnix japonica (Japanese quail)): > 2.000 mg/kg<br><br>LD50 (Anas platyrhynchos (Mallard duck)): > 4,190 mg/kg<br><br>LD50 (Colinus virginianus (Bobwhite quail)): > 1,782 mg/kg |

**Components:**

**fluazinam (ISO):**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 0,11 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 0,19 mg/l<br>Exposure time: 48 h |
| Toxicity to algae/aquatic | : | IC50 (Selenastrum capricornutum (green algae)): > 0,2 mg/l |

| | | |
|---|---|---|
| plants | | Exposure time: 96 h |
| M-Factor (Acute aquatic toxicity) | : | 1 |
| Toxicity to fish (Chronic toxicity) | : | NOEC (Oncorhynchus mykiss (rainbow trout)): 0,012 mg/l<br>Exposure time: 28 d |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia magna (Water flea)): < 0,0125 mg/l<br>Exposure time: 21 d |
| M-Factor (Chronic aquatic toxicity) | : | 1 |
| Toxicity to microorganisms | : | EC50 (activated sludge): 75 mg/l<br>Exposure time: 3 h |
| Toxicity to soil dwelling organisms | : | LC50 (Eisenia fetida (earthworms)): > 1.000 mg/kg<br>Exposure time: 28 d |
| Toxicity to terrestrial organisms | : | LD50 (Anas platyrhynchos (Mallard duck)): > 4.190 mg/kg |
| | | LD50 (Colinus virginianus (Bobwhite quail)): 1.782 mg/kg |

**Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Zebra fish): > 10 - 100 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203<br>Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 100 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202<br>Remarks: Based on data from similar materials |
| Toxicity to algae/aquatic plants | : | EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: Based on data from similar materials |
| | | EC10 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | EC10 (Daphnia magna (Water flea)): > 10 - 100 mg/l<br>Exposure time: 21 d<br>Method: OECD Test Guideline 211<br>Remarks: Based on data from similar materials |

**Alcohols, C13-15, branched and linear, ethoxylated:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 1 - 10 mg/l<br>Exposure time: 48 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l<br>Exposure time: 48 h |
| Toxicity to algae/aquatic plants | : | EC50 (Scenedesmus subspicatus): > 1 - 10 mg/l<br>Exposure time: 72 h |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: > 0,1 - 1 mg/l |

**1,2-benzisothiazol-3(2H)-one:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Cyprinodon variegatus (sheepshead minnow)): 16,7 mg/l<br>Exposure time: 96 h<br>Test Type: static test<br><br>LC50 (Oncorhynchus mykiss (rainbow trout)): 2,15 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 2,9 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Method: OECD Test Guideline 202 |
| Toxicity to algae/aquatic plants | : | EC50 (Pseudokirchneriella subcapitata (green algae)): 0,070 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br><br>NOEC (Pseudokirchneriella subcapitata (green algae)): 0,04 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201 |
| M-Factor (Acute aquatic toxicity) | : | 10 |
| Toxicity to microorganisms | : | EC50 (activated sludge): 24 mg/l<br>Exposure time: 3 h<br>Test Type: Respiration inhibition<br>Method: OECD Test Guideline 209<br><br>EC50 (activated sludge): 12,8 mg/l<br>Exposure time: 3 h<br>Test Type: Respiration inhibition<br>Method: OECD Test Guideline 209 |

**Persistence and degradability**

**Product:**

Biodegradability : Result: Not biodegradable

**Components:**

**fluazinam (ISO):**

Biodegradability : Result: Not readily biodegradable.

**Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:**

Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

**Alcohols, C13-15, branched and linear, ethoxylated:**

Biodegradability : Result: Readily biodegradable.

**1,2-benzisothiazol-3(2H)-one:**

Biodegradability : Result: rapidly biodegradable
Method: OECD Test Guideline 301C

**Bioaccumulative potential**

**Components:**

**fluazinam (ISO):**

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 500 - 800
Remarks: Low potential for bioaccumulation

Partition coefficient: n-octanol/water : log Pow: 4,67 (21 °C)
pH: 7

log Pow: 3,34 (22 °C)
pH: 9

**Alcohols, C13-15, branched and linear, ethoxylated:**

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

**1,2-benzisothiazol-3(2H)-one:**

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 6,62
Exposure time: 56 d
Method: OECD Test Guideline 305
Remarks: Substance is not persistent, bioaccumulative, and toxic (PBT).

Partition coefficient: n-octanol/water : log Pow: 0,7 (20 °C)
pH: 7

log Pow: 0,99 (20 °C)
pH: 5

**Mobility in soil**

**Product:**

Distribution among environmental compartments : Remarks: immobile

**Components:**

**fluazinam (ISO):**

Distribution among environmental compartments : Remarks: Low mobility in soil.

**1,2-benzisothiazol-3(2H)-one:**

Distribution among environmental compartments : Koc: 9,33 ml/g, log Koc: 0,97
Method: OECD Test Guideline 121
Remarks: Highly mobile in soils

**Other adverse effects**

No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Do not re-use empty containers.
Packaging that is not properly emptied must be disposed of as the unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

It is prohibited to reuse, bury, burn or sell packaging.

Washable packaging: Triple wash packs of less than 20 liters and pressure wash packs of 20 liters or more. Triple Wash (Manual Wash): Completely empty the contents of the package into the sprayer tank, keeping it in an upright position for 30 seconds; Add clean water to the package up to ¼ of its volume; Cover the package well and shake it for 30 seconds; Pour the wash water into the spray tank; Do this operation three times; Make the plastic or metal packaging unusable by perforating the bottom.

Pressure wash: Fit the empty package in the appropriate place of the funnel installed on the sprayer; Activate the mechanism to release the water jet; Direct the water jet to all the inside walls of the package, for 30 seconds; Wash water must be transferred to the sprayer tank; Make the plastic or metal packaging unusable by perforating the bottom. In both procedures, puncture the container at its base without damaging the label. Within a period of up to one year from the date of purchase, the user must return the empty packaging, with lid, to the establishment where the product was purchased or to the place indicated on the invoice, issued at the time of purchase.Activate the mechanism to release the water jet. Direct the water jet to all the inside walls of the package, for 30 seconds. Wash water must be transferred to the sprayer tank. Make the plastic or metal packaging unusable by perforating the bottom.

## SECTION 14. TRANSPORT INFORMATION

### International Regulations

**UNRTDG**

| | | |
|---|---|---|
| UN number | : | UN 3082 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fluazinam) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | 9 |
| Environmentally hazardous | : | yes |

**IATA-DGR**

| | | |
|---|---|---|
| UN/ID No. | : | UN 3082 |
| Proper shipping name | : | Environmentally hazardous substance, liquid, n.o.s. (Fluazinam) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | Miscellaneous |
| Packing instruction (cargo aircraft) | : | 964 |
| Packing instruction (passenger aircraft) | : | 964 |

**IMDG-Code**

| | | |
|---|---|---|
| UN number | : | UN 3082 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fluazinam) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | 9 |
| EmS Code | : | F-A, S-F |
| Marine pollutant | : | yes |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation**

**ANTT**

| | | |
|---|---|---|
| UN number | : | UN 3082 |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fluazinam) |
| Class | : | 9 |
| Packing group | : | III |
| Labels | : | 9 |
| Hazard Identification Number | : | 90 |

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## SECTION 15. REGULATORY INFORMATION

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

Law No. 14,785 of December 27, 2023. Decree 4,074 of January 4, 2002 and its regulatory standards. ANTT Resolution No. 5,998/22 of November 3, 2022. This MSDS was prepared in accordance with the criteria of ABNT NBR 14725. The user is recommended to pay attention to local regulations.

| | | |
|---|---|---|
| National List of Carcinogenic Agents for Humans - (LINACH) | : | Not applicable |
| Brazil. List of chemicals controlled by the Federal Police | : | urea |

**The ingredients of this product are reported in the following inventories:**

| | | |
|---|---|---|
| TCSI | : | Not in compliance with the inventory |
| TSCA | : | Product contains substance(s) not listed on TSCA inventory. |
| AIIC | : | Not in compliance with the inventory |
| DSL | : | This product contains the following components that are not on the Canadian DSL nor NDSL.<br><br>fluazinam (ISO)<br>mixture of polyorganosiloxanes and fillers<br>Alcohols, C13-15, branched and linear, ethoxylated |
| ENCS | : | Not in compliance with the inventory |
| ISHL | : | Not in compliance with the inventory |

| | | |
|---|---|---|
| KECI | : | Not in compliance with the inventory |
| PICCS | : | Not in compliance with the inventory |
| IECSC | : | Not in compliance with the inventory |
| NZIoC | : | Not in compliance with the inventory |
| TECI | : | Not in compliance with the inventory |

## SECTION 16. OTHER INFORMATION

| | | |
|---|---|---|
| Revision Date | : | 06.05.2025 |
| Date format | : | dd.mm.yyyy |

**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

**Disclaimer**

FMC Corporation believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. You can contact FMC Corporation to insure that this document is the most current available from FMC Corporation. No warranty of fitness for any particular purpose, warranty of merchantability or any other warranty, expressed or implied, is made concerning the information provided herein. The information provided herein relates only to the specified product designated and may not be applicable where such product is used in combination with any other materials or in any process. The user is responsible for determining whether the product is fit for a particular purpose and suitable for the user's conditions and methods of use. Since the conditions and methods of use are beyond the control of FMC Corporation, FMC Corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.

BR / EN