

**Fluazuron / Citronellal Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 28.09.2024
6.0	14.04.2025	4624621-00015	Date of first issue: 09.07.2019

**SECTION 1. IDENTIFICATION**

Product identifier : Fluazuron / Citronellal Formulation

**Manufacturer or supplier's details**

Company : MSD

Address : Rua Coronel Bento Soares, 530  
Cruzeiro - Sao Paulo - Brazil CEP 12730-340

Telephone : 908-740-4000

Emergency telephone : 1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

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

Recommended use : Veterinary product

Restrictions on use : Not applicable

**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification in accordance with ABNT NBR 14725 Standard**

Flammable liquids : Category 3

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitization : Category 1

Reproductive toxicity : Category 1B

Specific target organ toxicity -  
single exposure : Category 3

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 :



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Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
H360D May damage the unborn child.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
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:**

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P391 Collect spillage.

**Storage:**

P405 Store locked up.

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

Vapors may form explosive mixture with air.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Soya oil	8001-22-7	Aquatic Chronic, 4	>= 30 -< 50

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N-Methyl-2-pyrrolidone	872-50-4	Flam. Liq., 4 Acute Tox. (Oral), 5 Skin Irrit., 2 Eye Irrit., 2A Repr., 1B STOT SE, 3	$\geq 30 - < 50$
Propan-2-ol	67-63-0	Flam. Liq., 2 Eye Irrit., 2A STOT SE, 3	$\geq 5 - < 10$
Butanone	78-93-3	Flam. Liq., 2 Acute Tox. (Oral), 5 Eye Irrit., 2A STOT SE, 3 Asp. Tox., 2	$\geq 5 - < 10$
6-Octenal, 3,7-dimethyl-	106-23-0	Flam. Liq., 4 Acute Tox. (Oral), 5 Acute Tox. (Dermal), 5 Skin Irrit., 2 Eye Irrit., 2A Skin Sens., 1 Aquatic Acute, 2	$\geq 2,5 - < 5$
Fluazuron	86811-58-7	Aquatic Acute, 1 Aquatic Chronic, 1	$\geq 2,5 - < 5$
2,6-Di-tert-butyl-p-cresol	128-37-0	Aquatic Acute, 1 Aquatic Chronic, 1	$\geq 0,25 - < 1$

## SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
 Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
 Get medical attention.  
 Wash clothing before reuse.  
 Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
 If easy to do, remove contact lens, if worn.  
 Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.  
 Get medical attention.  
 Rinse mouth thoroughly with water.
- Most important symptoms : Causes skin irritation.

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and effects, both acute and delayed		May cause an allergic skin reaction. Causes serious eye irritation. May cause respiratory irritation. May damage the unborn child.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
Notes to physician	:	Treat symptomatically and supportively.

**SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO <sub>2</sub> ) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NO <sub>x</sub> ) Chlorine compounds Fluorine compounds
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures	:	Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

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Methods and materials for containment and cleaning up : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

**SECTION 7. HANDLING AND STORAGE**

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.  
Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling : Do not get on skin or clothing.  
Avoid breathing mist or vapors.  
Do not swallow.  
Do not get in eyes.  
Wash skin thoroughly after handling.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Non-sparking tools should be used.  
Keep container tightly closed.  
Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Take precautionary measures against static discharges.  
Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.  
When using do not eat, drink or smoke.  
Contaminated work clothing should not be allowed out of the workplace.  
Wash contaminated clothing before re-use.  
The effective operation of a facility should include review of

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- engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.
- Conditions for safe storage : Keep in properly labeled containers.  
 Store locked up.  
 Keep tightly closed.  
 Keep in a cool, well-ventilated place.  
 Store in accordance with the particular national regulations.  
 Keep away from heat and sources of ignition.
- Materials to avoid : Do not store with the following product types:  
 Strong oxidizing agents  
 Self-reactive substances and mixtures  
 Organic peroxides  
 Flammable solids  
 Pyrophoric liquids  
 Pyrophoric solids  
 Self-heating substances and mixtures  
 Substances and mixtures which in contact with water emit flammable gases  
 Explosives  
 Gases  
 Very acutely toxic substances and mixtures

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Propan-2-ol	67-63-0	LT	310 ppm 765 mg/m <sup>3</sup>	BR OEL
	Further information: Absorption through the skin, Degree of harmfulness: medium			
		TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
Butanone	78-93-3	LT	155 ppm 460 mg/m <sup>3</sup>	BR OEL
	Further information: Degree of harmfulness: medium			
		TWA	75 ppm	ACGIH
		STEL	150 ppm	ACGIH
Fluazuron	86811-58-7	TWA	60 µg/m <sup>3</sup> (OEB 3)	Internal
		Wipe limit	600 µg/ 100cm <sup>2</sup>	Internal
2,6-Di-tert-butyl-p-cresol	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m <sup>3</sup>	ACGIH

## Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
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N-Methyl-2-pyrrolidone	872-50-4	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	End of workday	100 mg/l	BR BEI
		5-Hydroxy-N-methyl-2-pyrrolidone	Urine	End of shift (As soon as possible after exposure ceases)	100 mg/l	ACGIH BEI
Propan-2-ol	67-63-0	Acetone	Urine	End of workday at end of work-week	40 mg/l	BR BEI
		Acetone	Urine	End of shift at end of work-week	40 mg/l	ACGIH BEI
Butanone	78-93-3	MEK (methyl-ethyl-ketone)	Urine	End of workday	2 mg/l	BR BEI
		methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI

**Engineering measures** : Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).  
 All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.  
 Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).  
 Minimize open handling.  
 Use explosion-proof electrical, ventilating and lighting equipment.

**Personal protective equipment**

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Organic vapor Type  
 Hand protection

Material : Chemical-resistant gloves

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Remarks	: Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.
Eye protection	: Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. 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	: Work uniform or laboratory coat. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Use appropriate degowning techniques to remove potentially contaminated clothing.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state	: Aqueous solution
Color	: yellow
Odor	: No data available
Odor Threshold	: No data available
pH	: No data available
Melting point/freezing point	: -4 °C
Initial boiling point and boiling range	: 78 °C
Flash point	: 52 °C
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Flammability (liquids)	: Not applicable
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapor pressure	: No data available
Relative vapor density	: No data available
Relative density	: 0,94 - 0,96
Density	: No data available



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Solubility(ies)  
Water solubility : practically insoluble

Solubility in other solvents : soluble  
Solvent: Ethanol

Partition coefficient: n-octanol/water : log Pow: -0,54

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity  
Viscosity, kinematic : 5,3 - 5,7 mm<sup>2</sup>/s ( 25 °C)

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle characteristics  
Particle size : Not applicable

**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Flammable liquid and vapor.  
Vapors may form explosive mixture with air.  
Can react with strong oxidizing agents.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

**SECTION 11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Product:**

Acute oral toxicity : Acute toxicity estimate: > 5.000 mg/kg  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 5.000 mg/kg

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Method: Calculation method

**Components:****N-Methyl-2-pyrrolidone:**

Acute oral toxicity	: LD50 (Rat): 4.150 mg/kg Method: OECD Test Guideline 401 Remarks: The test was conducted equivalent or similar to guideline
Acute inhalation toxicity	: LC50 (Rat): > 5,1 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Remarks: The test was conducted according to guideline
Acute dermal toxicity	: LD50 (Rat): > 5.000 mg/kg Method: OECD Test Guideline 402 Remarks: The test was conducted equivalent or similar to guideline

**Propan-2-ol:**

Acute oral toxicity	: LD50 (Rat): > 5.000 mg/kg
Acute inhalation toxicity	: LC50 (Rat): > 25 mg/l Exposure time: 6 h Test atmosphere: vapor
Acute dermal toxicity	: LD50 (Rabbit): > 5.000 mg/kg

**Butanone:**

Acute oral toxicity	: LD50 (Rat): > 2.000 - 5.000 mg/kg Remarks: Based on data from similar materials
Acute inhalation toxicity	: LC50 (Rat): > 25,5 mg/l Exposure time: 4 h Test atmosphere: vapor Method: OECD Test Guideline 436 Remarks: Based on data from similar materials
Acute dermal toxicity	: LD50 (Rabbit): > 5.000 mg/kg

**6-Octenal, 3,7-dimethyl-:**

Acute oral toxicity	: LD50 (Rat, female): 2.150 mg/kg
Acute dermal toxicity	: LD50 (Rabbit): > 2.500 - 5.000 mg/kg

**Fluazuron:**

Acute oral toxicity	: LD50 (Rat): > 5.000 mg/kg Method: OECD Test Guideline 401
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Acute inhalation toxicity : LC50 (Rat): > 6,0 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg  
Method: OECD Test Guideline 402

**2,6-Di-tert-butyl-p-cresol:**

Acute oral toxicity : LD50 (Rat): > 6.000 mg/kg  
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat): > 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.

**Components:****N-Methyl-2-pyrrolidone:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation  
Remarks : The test was conducted equivalent or similar to guideline

**Propan-2-ol:**

Species : Rabbit  
Result : No skin irritation

**Butanone:**

Assessment : Repeated exposure may cause skin dryness or cracking.

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : Based on data from similar materials

**6-Octenal, 3,7-dimethyl-:**

Species : Rabbit  
Result : Skin irritation

**Fluazuron:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

**2,6-Di-tert-butyl-p-cresol:**

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Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation
Remarks	: Based on data from similar materials

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Components:****N-Methyl-2-pyrrolidone:**

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days
Method	: OECD Test Guideline 405
Remarks	: The test was conducted equivalent or similar to guideline

**Propan-2-ol:**

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days

**Butanone:**

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days
Method	: OECD Test Guideline 405

**6-Octenal, 3,7-dimethyl-:**

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days

**Fluazuron:**

Species	: Rabbit
Result	: Mild eye irritation
Method	: OECD Test Guideline 405

**2,6-Di-tert-butyl-p-cresol:**

Species	: Rabbit
Result	: No eye irritation
Method	: OECD Test Guideline 405
Remarks	: Based on data from similar materials

**Respiratory or skin sensitization****Skin sensitization**

May cause an allergic skin reaction.

**Respiratory sensitization**

Not classified based on available information.

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**Components:****N-Methyl-2-pyrrolidone:**

Test Type	: Local lymph node assay (LLNA)
Routes of exposure	: Skin contact
Species	: Mouse
Method	: OECD Test Guideline 429
Result	: negative
Remarks	: Based on data from similar materials

**Propan-2-ol:**

Test Type	: Buehler Test
Routes of exposure	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

**Butanone:**

Test Type	: Buehler Test
Routes of exposure	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

**6-Octenal, 3,7-dimethyl-:**

Test Type	: Maximization Test
Routes of exposure	: Skin contact
Species	: Guinea pig
Result	: positive

Assessment	: Probability or evidence of skin sensitization in humans
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**Fluazuron:**

Routes of exposure	: Skin contact
Species	: Guinea pig
Result	: negative

**2,6-Di-tert-butyl-p-cresol:**

Test Type	: Human repeat insult patch test (HRIPT)
Routes of exposure	: Skin contact
Species	: Humans
Result	: negative

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****N-Methyl-2-pyrrolidone:**

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471
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Genotoxicity in vivo	Result: negative Remarks: The test was conducted according to guideline  Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative Remarks: The test was conducted according to guideline  Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro) Method: OECD Test Guideline 482 Result: negative Remarks: The test was conducted equivalent or similar to guideline  : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Ingestion Method: OECD Test Guideline 474 Result: negative Remarks: The test was conducted according to guideline
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**Propan-2-ol:**

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Result: negative  Test Type: In vitro mammalian cell gene mutation test Result: negative
Genotoxicity in vivo	: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Result: negative

**Butanone:**

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Result: negative  Test Type: In vitro mammalian cell gene mutation test Result: negative  Test Type: Chromosome aberration test in vitro Result: negative  Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro) Result: negative  Test Type: Saccharomyces cerevisiae, gene mutation assay (in vitro) Result: negative
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Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative

**6-Octenal, 3,7-dimethyl-:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
  
Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Test Type: in vitro micronucleus test  
Method: OECD Test Guideline 487  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

**Fluazuron:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
  
Test Type: DNA Repair  
Result: negative  
  
Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Genotoxicity in vivo : Test Type: Cytogenetic assay  
Species: Hamster  
Result: equivocal

**2,6-Di-tert-butyl-p-cresol:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
  
Test Type: In vitro mammalian cell gene mutation test  
Result: negative  
  
Test Type: Chromosome aberration test in vitro  
Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Rat  
Application Route: Ingestion

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Result: negative

**Carcinogenicity**

Not classified based on available information.

**Components:****N-Methyl-2-pyrrolidone:**

Species	: Rat
Application Route	: Ingestion
Exposure time	: 2 Years
Method	: OECD Test Guideline 451
Result	: negative
Remarks	: The test was conducted according to guideline

Species	: Rat
Application Route	: Inhalation
Exposure time	: 2 Years
Method	: OECD Test Guideline 453
Result	: negative
Remarks	: The test was conducted equivalent or similar to guideline

**Propan-2-ol:**

Species	: Rat
Application Route	: inhalation (vapor)
Exposure time	: 104 weeks
Method	: OECD Test Guideline 451
Result	: negative

**6-Octenal, 3,7-dimethyl-:**

Species	: Rat
Application Route	: Ingestion
Exposure time	: 104 - 105 weeks
Result	: negative
Remarks	: Based on data from similar materials

Species	: Mouse
Application Route	: Ingestion
Exposure time	: 104 - 105 weeks
Result	: negative
Remarks	: Based on data from similar materials

**Fluazuron:**

Species	: Rat
Application Route	: Ingestion
Exposure time	: 2 Years
Method	: OECD Test Guideline 453
Result	: negative

Species	: Mouse
Application Route	: Ingestion
Exposure time	: 2 Years



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Result : negative

**2,6-Di-tert-butyl-p-cresol:**

Species : Rat  
 Application Route : Ingestion  
 Exposure time : 22 Months  
 Result : negative

**Reproductive toxicity**

May damage the unborn child.

**Components:****N-Methyl-2-pyrrolidone:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
 Species: Rat  
 Application Route: Ingestion  
 Method: OECD Test Guideline 416  
 Result: negative  
 Remarks: The test was conducted according to guideline

Effects on fetal development : Test Type: Embryo-fetal development  
 Species: Rat  
 Application Route: Ingestion  
 Method: OECD Test Guideline 414  
 Result: positive  
 Remarks: The test was conducted according to guideline

Test Type: Fertility/early embryonic development  
 Species: Rat  
 Application Route: inhalation (vapor)  
 Method: OECD Test Guideline 414  
 Result: positive  
 Remarks: The test was conducted equivalent or similar to guideline

Test Type: Embryo-fetal development  
 Species: Rabbit  
 Application Route: Ingestion  
 Method: OECD Test Guideline 414  
 Result: positive  
 Remarks: The test was conducted equivalent or similar to guideline

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

**Propan-2-ol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
 Species: Rat  
 Application Route: Ingestion  
 Result: negative

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Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**Butanone:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Inhalation  
Method: OECD Test Guideline 414  
Result: negative

**6-Octenal, 3,7-dimethyl-:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 443  
Result: negative  
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 443  
Result: negative  
Remarks: Based on data from similar materials

**Fluazuron:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

Test Type: Embryo-fetal development  
Species: Rabbit  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative

**2,6-Di-tert-butyl-p-cresol:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study

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	Species: Rat
	Application Route: Ingestion
	Result: negative
Effects on fetal development	: Test Type: Embryo-fetal development
	Species: Rat
	Application Route: Ingestion
	Result: negative

**STOT-single exposure**

May cause respiratory irritation.

**Components:****N-Methyl-2-pyrrolidone:**

Assessment	: May cause respiratory irritation.
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**Propan-2-ol:**

Assessment	: May cause drowsiness or dizziness.
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**Butanone:**

Assessment	: May cause drowsiness or dizziness.
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**STOT-repeated exposure**

Not classified based on available information.

**Components:****2,6-Di-tert-butyl-p-cresol:**

Assessment	: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.
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**Repeated dose toxicity****Components:****Soya oil:**

Species	: Rat
NOAEL	: 4.000 mg/kg
Application Route	: Ingestion
Exposure time	: 90 h

**N-Methyl-2-pyrrolidone:**

Species	: Rat, male
NOAEL	: 169 mg/kg
LOAEL	: 433 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days
Method	: OECD Test Guideline 408
Remarks	: The test was conducted according to guideline

Species	: Rat
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NOAEL	: 0,5 mg/l
LOAEL	: 1 mg/l
Application Route	: inhalation (dust/mist/fume)
Exposure time	: 96 Days
Method	: OECD Test Guideline 413
Remarks	: The test was conducted according to guideline

Species	: Rabbit, male
NOAEL	: 826 mg/kg
LOAEL	: 1.653 mg/kg
Application Route	: Skin contact
Exposure time	: 20 Days
Method	: OECD Test Guideline 410
Remarks	: The test was conducted equivalent or similar to guideline

**Propan-2-ol:**

Species	: Rat
NOAEL	: 12,5 mg/l
Application Route	: inhalation (vapor)
Exposure time	: 104 Weeks

**Butanone:**

Species	: Rat
NOAEL	: 14,84 mg/l
Application Route	: inhalation (vapor)
Exposure time	: 90 Days
Method	: OECD Test Guideline 413

**6-Octenal, 3,7-dimethyl-:**

Species	: Rat
LOAEL	: > 100 mg/kg
Application Route	: Ingestion
Exposure time	: 14 Weeks
Remarks	: Based on data from similar materials

**Fluazuron:**

Species	: Rat
LOAEL	: 240 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks
Target Organs	: Liver, Thyroid, Pituitary gland

Species	: Rat
NOAEL	: 10 mg/kg
LOAEL	: 100 mg/kg
Application Route	: Skin contact
Exposure time	: 3 Weeks

Species	: Dog
NOAEL	: 7,5 mg/kg

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LOAEL	:	110 mg/kg
Application Route	:	Ingestion
Exposure time	:	52 Weeks
Target Organs	:	Liver

**2,6-Di-tert-butyl-p-cresol:**

Species	:	Rat
NOAEL	:	25 mg/kg
Application Route	:	Ingestion
Exposure time	:	22 Months

**Aspiration toxicity**

Not classified based on available information.

**Components:****Butanone:**

The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

**Experience with human exposure****Components:****N-Methyl-2-pyrrolidone:**

Skin contact	:	Symptoms: Skin irritation
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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****N-Methyl-2-pyrrolidone:**

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1.000 mg/l Exposure time: 24 h Method: DIN 38412 Remarks: The test was conducted according to guideline
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 600,5 mg/l Exposure time: 72 h  EC10 (Desmodesmus subspicatus (green algae)): 92,6 mg/l Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 12,5 mg/l Exposure time: 21 d Method: OECD Test Guideline 211 Remarks: The test was conducted according to guideline

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Toxicity to microorganisms : EC50 (activated sludge): > 600 mg/l  
 Exposure time: 30 min  
 Method: ISO 8192  
 Remarks: The test was conducted according to guideline

**Propan-2-ol:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 9.640 mg/l  
 Exposure time: 96 h  
 Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10.000 mg/l  
 Exposure time: 24 h  
 Toxicity to microorganisms : EC50 (Pseudomonas putida): > 1.050 mg/l  
 Exposure time: 16 h

**Butanone:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2.993 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 203  
 Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 308 mg/l  
 Exposure time: 48 h  
 Method: OECD Test Guideline 202  
 Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 2.029 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 201  
 NOEC (Pseudokirchneriella subcapitata (green algae)): 1.240 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 201

**6-Octenal, 3,7-dimethyl-:**

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 22 mg/l  
 Exposure time: 96 h  
 Method: DIN 38412  
 Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 8,7 mg/l  
 Exposure time: 48 h  
 Method: Directive 67/548/EEC, Annex V, C.2.  
 Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 13,33 mg/l  
 Exposure time: 72 h  
 EC10 (Desmodesmus subspicatus (green algae)): 4,52 mg/l  
 Exposure time: 72 h  
 Toxicity to microorganisms : EC10 (Pseudomonas putida): 650 mg/l  
 Exposure time: 30 min

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**Fluazuron:**

Toxicity to fish	:	LC50 (Cyprinus carpio (Carp)): > 9,1 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia sp. (Water flea)): 0,0006 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	NOEC (Raphidocelis subcapitata (freshwater green alga)): 27,9 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	1.000
M-Factor (Chronic aquatic toxicity)	:	1.000

**2,6-Di-tert-butyl-p-cresol:**

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 0,57 mg/l Exposure time: 96 h Method: Directive 67/548/EEC, Annex V, C.1.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,48 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0,24 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
		NOEC (Pseudokirchneriella subcapitata (green algae)): 0,24 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to fish (Chronic toxicity)	:	NOEC (Oryzias latipes (Japanese medaka)): 0,053 mg/l Exposure time: 30 d Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0,316 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50: > 10.000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

**Persistence and degradability****Components:****N-Methyl-2-pyrrolidone:**

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Biodegradability : Result: Readily biodegradable.  
Biodegradation: 73 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C  
Remarks: The test was conducted according to guideline

**Propan-2-ol:**

Biodegradability : Result: rapidly degradable  
BOD/COD : BOD: 1,19 (BOD5)  
COD: 2,23  
BOD/COD: 53 %

**Butanone:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 98 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

**6-Octenal, 3,7-dimethyl-:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 83 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

**2,6-Di-tert-butyl-p-cresol:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 4,5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

**Bioaccumulative potential****Components:****Soya oil:**

Partition coefficient: n-octanol/water : log Pow: > 4  
Remarks: Calculation

**N-Methyl-2-pyrrolidone:**

Partition coefficient: n-octanol/water : log Pow: -0,46  
Method: OECD Test Guideline 107  
Remarks: The test was conducted according to guideline

**Propan-2-ol:**

Partition coefficient: n-octanol/water : log Pow: 0,05

**Butanone:**

Partition coefficient: n-octanol/water : log Pow: 0,3



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|| Octanol/water

**6-Octenal, 3,7-dimethyl-:**|| Partition coefficient: n-  
|| Octanol/water : log Pow: 3,62**Fluazuron:**|| Partition coefficient: n-  
|| Octanol/water : log Pow: 5,1**2,6-Di-tert-butyl-p-cresol:**|| Bioaccumulation : Species: Cyprinus carpio (Carp)  
|| Bioconcentration factor (BCF): 330 - 1.800|| Partition coefficient: n-  
|| Octanol/water : log Pow: 5,1**Mobility in soil**

No data available

**Other adverse effects**

No data available

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues	: Do not dispose of waste into sewer. Dispose of in accordance with local regulations.
Contaminated packaging	: Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

## SECTION 14. TRANSPORT INFORMATION

**International Regulations****UNRTDG**

UN number	: UN 1993
Proper shipping name	: FLAMMABLE LIQUID, N.O.S. (Propan-2-ol, Butanone)
Class	: 3
Packing group	: III
Labels	: 3
Environmentally hazardous	: no

**IATA-DGR**

UN/ID No.	: UN 1993
Proper shipping name	: Flammable liquid, n.o.s. (Propan-2-ol, Butanone)
Class	: 3
Packing group	: III

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Labels : Flammable Liquids

Packing instruction (cargo aircraft) : 366

Packing instruction (passenger aircraft) : 355

**IMDG-Code**

UN number : UN 1993

Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
(Propan-2-ol, Butanone, Fluazuron, 2,6-Di-tert-butyl-p-cresol)

Class : 3

Packing group : III

Labels : 3

EmS Code : F-E, S-E

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 1993

Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
(Propan-2-ol, Butanone)

Class : 3

Packing group : III

Labels : 3

Hazard Identification Number : 30

**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**

National List of Carcinogenic Agents for Humans - (LINACH) : Not applicable

Brazil. List of chemicals controlled by the Federal Police : Propan-2-ol

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

AICS : not determined

DSL : not determined

IECSC : not determined

**SECTION 16. OTHER INFORMATION**

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Date format : dd.mm.yyyy

**Further information**

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

**Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)  
BR BEI : Brazil. NR7. Parameters for Biological Control of Occupational Exposure to Some Chemical Agents  
BR OEL : Brazil. NR 15 - Unhealthy activities and operations  
  
ACGIH / TWA : 8-hour, time-weighted average  
ACGIH / STEL : Short-term exposure limit  
BR OEL / LT : Up to 48 hours /week

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; TECL - 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

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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