



Version **Revision Date:** SDS Number: Date of last issue: -

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#### **SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : STONE®

Manufacturer or supplier's details

Company FMC QUÍMICA DO BRASIL LTDA.

AVENIDA DR. JOSÉ BONIFÁCIO Address

> COUTINHO NOGUEIRA 150 - 1º ANDAR - JARDIM MADALENA.

CAMPINAS SP BRASIL TELEFONE: (19) 2042.4500

Brazil: 0800 34 35 450 (24 hours) Emergency telephone

+55-2139581449 (CHEMTREC)

Medical Emergency Number 0800 7010 450

Recommended use of the chemical and restrictions on use

Recommended use : Herbicide

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

Carcinogenicity Category 2

repeated exposure

Specific target organ toxicity - : Category 2 (hematopoietic system, Nervous system)

Short-term (acute) aquatic

hazard

Category 1

Long-term (chronic) aquatic

hazard

Category 1





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

Hazard pictograms







Signal Word : WARNING

Hazard Statements : H303 + H313 May be harmful if swallowed or in contact with

skin.

H332 Harmful if inhaled.

H351 Suspected of causing cancer.

H373 May cause damage to organs (hematopoietic system, Nervous system) through prolonged or repeated exposure. 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.

P260 Do not breathe mist or vapors.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protec-

tion/ face protection/ hearing protection.

Response:

P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doc-

tor if you feel unwell.

P302 + P312 IF ON SKIN: Call a POISON CENTER/ doctor if

you feel unwell.

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/

doctor if you feel unwell.

P308 + P313 IF exposed or concerned: Get medical advice/

attention.

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





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Chemical name	CAS-No.	Classification	Concentration (% w/w)
diuron (ISO)	330-54-1	Acute Tox. (Oral), 5 Acute Tox. (Inhala- tion), 5 Carc., 2 Aquatic Acute, 1 Aquatic Chronic, 1	>= 30 -< 50
Sulfentrazone	122836-35-5	Acute Tox. (Oral), 5 Acute Tox. (Inhalation), 4 Acute Tox. (Dermal), 5 STOT RE, (hematopoietic system, Nervous system), 2 Aquatic Acute, 1 Aquatic Chronic, 1	>= 10 -< 20
ethanediol	107-21-1	Acute Tox. (Dermal), 5 STOT RE, (Oral)(Kidney), 2 Aquatic Acute, 3	>= 5 -< 10
toluene	108-88-3	Flam. Liq., 2 Acute Tox. (Inhalation), 5 Skin corrosion/irritation, 2 Repr., 2 STOT SE, (Central nervous system), 3 STOT RE, (Inhalation)(inner ear), 2 Asp. Tox., 1 Aquatic Acute, 2 Aquatic Chronic, 3	>= 0,25 -< 1
1,2-benzisothiazol-3(2H)-one	2634-33-5	Acute Tox. (Oral), 4 Serious eye damage/eye irritation, 1 Skin Sens., 1 Aquatic Acute, 1 Aquatic Chronic, 2	>= 0,025 -< 0,1

# **SECTION 4. FIRST AID MEASURES**

General advice Move out of dangerous area.

Show this material safety data sheet to the doctor in attend-

Do not leave the victim unattended.

If inhaled

Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical





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advice.

In case of skin contact : Wash off with soap and water.

If symptoms persist, call a physician.

Wash contaminated clothing before re-use.

In case of eye contact : Flush eyes with water as a precaution.

Remove contact lenses. Protect unharmed eye.

Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed : Induce vomiting immediately and call a physician.

Keep respiratory tract clear.

Do not give milk or alcoholic beverages.

Never give anything by mouth to an unconscious person.

If symptoms persist, call a physician. Take victim immediately to hospital.

Most important symptoms and effects, both acute and

May be harmful if swallowed or in contact with skin.

Harmful if inhaled.

Suspected of causing cancer.

May cause damage to organs through prolonged or repeated

exposure.

Exposure may result in convulsions, decreased locomotion, tearing, increased sensitivity to touch, bloody discharge from

the nose and incoordination.

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.

Unsuitable extinguishing

media

delayed

Do not spread spilled material with high-pressure water

streams.

Specific hazards during fire

fighting

Do not allow run-off from fire fighting to enter drains or water

courses.

Hazardous combustion prod: :

ucts

Fire may produce irritating, corrosive and/or toxic gases.

Chlorinated compounds Hydrogen chloride Nitrogen oxides (NOx) Hydrogen cyanide Carbon oxides

Fluorinated compounds

Sulfur oxides

Specific extinguishing meth-

ods

: Remove undamaged containers from fire area if it is safe to do

SO.

Use a water spray to cool fully closed containers.

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Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment.

Collect contaminated fire extinguishing water separately. This

must not be discharged into drains.

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 emer-

gency procedures

Evacuate personnel to safe areas. Use personal protective equipment.

If it can be safely done, stop the leak.

Do not touch or walk through the spilled material.

Environmental precautions : Prevent product from entering drains.

Prevent further leakage or spillage if safe to do so.

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.

Collect as much of the spill as possible with a suitable absor-

bent material.

Pick up and transfer to properly labeled containers. 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.

Do not breathe vapors/dust.

Avoid exposure - obtain special instructions before use.

Avoid contact with skin and eyes. For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the ap-

plication area.

Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national

regulations.

Hygiene measures : Avoid contact with skin, eyes and clothing.

Do not inhale aerosol.

When using do not eat or drink. When using do not smoke.

Wash hands before breaks and at the end of workday.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated

place.

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Containers which are opened must be carefully resealed and

kept upright to prevent leakage. Observe label precautions.

Electrical installations / working materials must comply with

the technological safety standards.

Further information on stor-

age stability

No decomposition if stored and applied as directed.

# **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

# Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
diuron (ISO)	330-54-1	TWA	10 mg/m3	ACGIH
ethanediol	107-21-1	TWA (Vapor)	25 ppm	ACGIH
		STEL	50 ppm	ACGIH
		(Vapor)		
		STEL (Inhal-	10 mg/m3	ACGIH
		able fraction,		
		Aerosol only)		
toluene	108-88-3	LT	78 ppm	BR OEL
			290 mg/m3	
		Further information: Absorption through the skin,		
		Degree of harmfulness: medium		
		TWA	20 ppm	ACGIH

# **Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sam- pling time	Permissible concentration	Basis
toluene 108-88-	108-88-3	toluene	Blood	Start of the last working day of the week	0,02 mg/l	BR BEI
		toluene	Urine	End of workday	0,03 mg/l	BR BEI
		ortho-cresol	Urine	End of workday	0.3 mg/g creatinine	BR BEI
		Toluene	In blood	Prior to last shift of work-week	0,02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0,03 mg/l	ACGIH BEI





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Personal protective equipment

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable per-

sonal respiratory protection and protective suit.

Hand protection

Material : Protective gloves

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

Tightly fitting safety goggles

Skin and body protection : Impervious clothing

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.

#### **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state : liquid (ca. 25 °C)

Color : white, opaque

Odor : characteristic

Odor Threshold : No data available

pH : 5,6 (ca. 20 °C)

Concentration: 10 g/l

Melting point/ range : No data available

Boiling point/boiling range : ca. 94,3 °C

Flash point : > 94,3 °C

No flash up to boiling point.

Evaporation rate : No data available

Flammability (liquids) : Not classified as a flammability hazard

Self-ignition : No data available

Upper explosion limit / Upper

flammability limit

No data available

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Lower explosion limit / Lower

flammability limit

: No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : No data available

Density : 1,19 g/cm3

Partition coefficient: n-

octanol/water

No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity

Viscosity, dynamic : 744,3 mPa.s ( 20 °C)

Method: OECD Test Guideline 114

1.365 mPa.s (40 °C)

Method: OECD Test Guideline 114

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : Non-oxidizing

Surface tension : 38,95 mN/m, 10 g/l

Molecular weight : Not applicable

Metal corrosion rate : Not corrosive to metals.

#### **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 reac-

tions

No decomposition if stored and applied as directed.

Conditions to avoid : Avoid extreme temperatures.

Avoid formation of aerosol.

Incompatible materials : Avoid strong acids, bases, and oxidizers.





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Hazardous decomposition

products

: No hazardous decomposition products are known.

#### **SECTION 11. TOXICOLOGICAL INFORMATION**

### **Acute toxicity**

May be harmful if swallowed or in contact with skin.

Harmful if inhaled.

**Product:** 

Acute oral toxicity : LD50 (Rat, female): > 2.000 mg/kg

Method: OECD Test Guideline 423

Symptoms: apathy

Assessment: The component/mixture is minimally toxic after

single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): 4,623 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403 Symptoms: kyphosis, piloerection

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg

Method: OECD Test Guideline 402

Symptoms: Irritation

Assessment: The component/mixture is minimally toxic after

single contact with skin. Remarks: no mortality

**Components:** 

diuron (ISO):

Acute oral toxicity : LD50 (Rat, female): 4.150 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,05 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat, male and female): > 5.000 mg/kg

Sulfentrazone:

Acute oral toxicity : LD50 (Rat, female): 2.689 mg/kg

Symptoms: ataxia, clonic convulsions, Fatality

GLP: yes

Acute inhalation toxicity : LC50 (Rat, male and female): > 4,13 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Method: EPA OPP 81 - 3

Symptoms: ataxia, Breathing difficulties

GLP: yes





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Remarks: no mortality

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2.000 mg/kg

Method: EPA OPP 81-2

GLP: yes

Assessment: The component/mixture is minimally toxic after

single contact with skin.

ethanediol:

Acute inhalation toxicity : LC0 (Rat, male and female): > 2,5 mg/l

Exposure time: 6 h

Test atmosphere: dust/mist Remarks: no mortality

Acute dermal toxicity : LD50 (Mouse, male and female): > 3.500 mg/kg

toluene:

Acute oral toxicity : LD50 (Rat): 5.580 mg/kg

Acute inhalation toxicity : LC50 (Rat, male): 25,7 mg/l

Exposure time: 4 h
Test atmosphere: vapor

LC50 (Rat, female): 30 mg/l

Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : (Rabbit): 12.267 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

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

**Product:** 

Species : Rabbit

Assessment : Not classified as irritant
Method : OECD Test Guideline 404

Result : slight irritation

**Components:** 

diuron (ISO):

Species : Rabbit Exposure time : 24 h





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Result : No skin irritation

Species : Rabbit Exposure time : 48 h

Result : No skin irritation

Species : Rabbit Exposure time : 72 h

Result : No skin irritation

Sulfentrazone:

Species : Rabbit

Assessment : No skin irritation
Method : EPA OPP 81-5
Result : No skin irritation

GLP : yes

ethanediol:

Species : Rabbit

Result : No skin irritation

toluene:

Species : Rabbit

Assessment : Repeated exposure may cause skin dryness or cracking.

Result : 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

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

Product:

Species : Rabbit Result : slight irritation

Assessment : Not classified as irritant
Method : OECD Test Guideline 405

Components:

diuron (ISO):

Species : Rabbit

Result : No eye irritation

Exposure time : 24 h

Species : Rabbit

Result : No eye irritation

Exposure time : 48 h





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Species : Rabbit

Result : No eye irritation

Exposure time : 72 h

Sulfentrazone:

Species : Rabbit

Result : No eye irritation
Assessment : No eye irritation
Method : EPA OPP 81-4

GLP : yes

ethanediol:

Species : Rabbit

Result : No eye irritation

toluene:

Species : Rabbit

Result : No eye irritation

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

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

Respiratory sensitization

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

**Product:** 

Test Type : Buehler Test
Routes of exposure : Dermal
Species : Guinea pig

Method : OECD Test Guideline 406

Result : Does not cause skin sensitization.

**Components:** 

diuron (ISO):

Species : Guinea pig

Method : OECD Test Guideline 406
Result : Not a skin sensitizer.





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Sulfentrazone:

Test Type : Maximization Test

Species : Guinea pig

Method : OECD Test Guideline 406

Result : Does not cause skin sensitization.

ethanediol:

Test Type : Maximization Test

Species : Guinea pig

Result : Does not cause skin sensitization.

toluene:

Test Type : Maximization Test

Species : Guinea pig

Result : Not a skin sensitizer.

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

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

**Product:** 

Genotoxicity in vitro : Test Type: Ames test

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Method: OECD Test Guideline 474

Result: negative

**Components:** 

diuron (ISO):

Genotoxicity in vitro : Method: OECD Test Guideline 471

Result: negative

Method: OECD Test Guideline 473

Result: negative

Method: OECD Test Guideline 476





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Result: negative

Genotoxicity in vivo : Method: OECD Test Guideline 474

Result: negative

Germ cell mutagenicity -

Assessment

Weight of evidence does not support classification as a germ

cell mutagen.

Sulfentrazone:

Genotoxicity in vitro : Test Type: Ames test

Metabolic activation: with and without metabolic activation

Result: negative

Test Type: Mouse lymphoma assay Test system: mouse lymphoma cells Metabolic activation: Metabolic activation

Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse

Application Route: Intraperitoneal injection

Result: negative

Germ cell mutagenicity -

Assessment

Animal testing did not show any mutagenic effects.

ethanediol:

Genotoxicity in vitro : Test Type: reverse mutation assay

Method: OPPTS 870.5100

Result: negative

Genotoxicity in vivo : Test Type: dominant lethal test

Species: Rat

**Application Route: Oral** 

Result: negative

toluene:

Genotoxicity in vitro : Test Type: Ames test

Result: negative

Method: OECD Test Guideline 476

Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro

Species: Rat Result: negative

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

Genotoxicity in vitro : Test Type: gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476





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Result: negative

Test Type: Ames test

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

Result: positive

Genotoxicity in vivo : Test Type: unscheduled DNA synthesis assay

Species: Rat (male) Cell type: Liver cells

Application Route: Ingestion

Exposure time: 4 h

Method: OECD Test Guideline 486

Result: negative

Test Type: Micronucleus test

Species: Mouse

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Germ cell mutagenicity -

Assessment

Weight of evidence does not support classification as a germ

cell mutagen.

#### Carcinogenicity

Suspected of causing cancer.

# Components:

### diuron (ISO):

Species : Rat, male
Application Route : Oral
Exposure time : 2 y

Dose : 1.0, 10 and 111 mg/kg bw/d

1,0 - 10,0 mg/kg bw/day

Method : OECD Test Guideline 453

Result : positive Symptoms : Cancer

Target Organs : Bladder, Blood, spleen

Species : Rat, females

Application Route : Oral Exposure time : 2 y

Dose : 0, 1.7, 17 and 203 mg/kg bw/d

1,7 - 17,0 mg/kg bw/day

Method : OECD Test Guideline 453

Result : positive
Symptoms : Cancer
Target Organs : Bladder, Blood

Carcinogenicity - Assess-

ment

: Limited evidence of carcinogenicity in animal studies





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Sulfentrazone:

Species : Rat, male and female

Application Route : Ingestion Exposure time : 2 Years Result : negative

Species : Mouse, male and female

Application Route : Ingestion
Exposure time : 18 month(s)
Result : negative

Carcinogenicity - Assess-

ment

Animal testing did not show any carcinogenic effects.

ethanediol:

Species : Mouse Application Route : Oral

Exposure time : 24 month(s)
Result : negative

Reproductive toxicity

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

Components:

diuron (ISO):

Effects on fertility : Species: Rat, male

Dose: 0, 10, 250 or 1750 parts per million

General Toxicity Parent: NOEL: 14,8 mg/kg body weight General Toxicity F1: NOAEL: 18,9 mg/kg body weight

Method: OECD Test Guideline 416

Species: Rat, female

Dose: 0, 10, 250 or 1750 parts per million

General Toxicity Parent: NOEL: 18,5 mg/kg body weight General Toxicity F1: NOAEL: 22,1 mg/kg body weight

Effects on fetal development : Species: Rabbit, female

Application Route: Oral

Dose: 0, 2, 10, and 50 mg milligram per kilogram

Duration of Single Treatment: 20 d Frequency of Treatment: 7 - 19 days

General Toxicity Maternal: LOAEL: 50 mg/kg body weight

Symptoms: Reduced body weight, No fetotoxicity.

Method: OECD Test Guideline 414

Reproductive toxicity - As-

sessment

Weight of evidence does not support classification for repro-

ductive toxicity

Sulfentrazone:

Effects on fertility : Test Type: Two-generation study

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Species: Rat, male and female

Application Route: Oral

General Toxicity Parent: NOEL: 13,7 - 16,2 mg/kg bw/day General Toxicity F1: NOEL: 13,7 - 16,2 mg/kg bw/day

Symptoms: Maternal effects.

Effects on fetal development : Test Type: Embryo-fetal development

Species: Rat

Application Route: Oral

General Toxicity Maternal: NOEL: 25 mg/kg bw/day Developmental Toxicity: NOEL: 10 mg/kg bw/day

Method: EPA OPP 83-3

Test Type: Embryo-fetal development

Species: Rat

Application Route: Oral

General Toxicity Maternal: LOAEL: 50 mg/kg bw/day Developmental Toxicity: LOAEL F1: 25 mg/kg bw/day

Symptoms: Skeletal malformations.

Target Organs: spleen Method: EPA OPP 83-3

toluene:

Effects on fetal development : Species: Rat

Application Route: Inhalation Result: Teratogenic effects.

Remarks: Adverse developmental effects were observed

Reproductive toxicity - As-

sessment

Some evidence of adverse effects on sexual function and

fertility, and/or 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 - As-

sessment

Weight of evidence does not support classification for repro-

ductive toxicity

STOT-single exposure

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

**Components:** 

Sulfentrazone:

Remarks : No significant adverse effects were reported





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toluene:

Assessment : May cause drowsiness or dizziness.

### STOT-repeated exposure

May cause damage to organs (hematopoietic system, Nervous system) through prolonged or repeated exposure.

#### Components:

diuron (ISO):

Routes of exposure : Inhalation, Ingestion Target Organs : spleen, Blood

Assessment : The substance or mixture is classified as specific target organ

toxicant, repeated exposure, category 2.

Sulfentrazone:

Target Organs : hematopoietic system, Nervous system

Assessment : The substance or mixture is classified as specific target organ

toxicant, repeated exposure, category 2.

ethanediol:

Routes of exposure : Oral Target Organs : Kidney

Assessment : The substance or mixture is classified as specific target organ

toxicant, repeated exposure, category 2.

toluene:

Routes of exposure : Inhalation Target Organs : inner ear

Assessment : The substance or mixture is classified as specific target organ

toxicant, repeated exposure, category 2.

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:**

diuron (ISO):

Species : Rat, female LOAEL : 8,7 mg/kg Application Route : Oral Exposure time : 90 d

Dose : 6.7, 16.8, 168 mg/kg/d Method : OECD Test Guideline 408

GLP : yes

Target Organs : Blood, Kidney





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Species : Dog
NOAEL : 1,8 mg/kg
LOAEL : 11 mg/kg
Application Route : Oral
Exposure time : 1 year

Dose : 1.8, 11, 66 mg/kg/d

Method : OECD Test Guideline 452

Target Organs : Blood, Kidney, Liver, spleen

Symptoms : anemia

Species : Rat, female
NOAEL : 0,004 mg/l
LOAEL : 0,037 mg/l
Application Route : Inhalation
Test atmosphere : dust/mist

Dose : 0.004, 0.037, 0.268 mg/L Method : OECD Test Guideline 412

GLP : yes

Target Organs : spleen, Blood

Species : Rabbit
NOAEL : 250 mg/kg
Application Route : Dermal

Dose : 50,250 mg/kg bw

Method : OECD Test Guideline 410

Remarks : No adverse effect has been observed in chronic toxicity tests.

### Sulfentrazone:

Species : Rat, male
NOAEL : 19,9 mg/kg
LOAEL : 65,8 mg/kg
Application Route : Oral - feed
Exposure time : 90-days
GLP : yes

Target Organs : hematopoietic system

Species : Mouse, male
NOAEL : 60 mg/kg
LOAEL : 108,4 mg/kg
Application Route : Oral - feed
Exposure time : 90-days

Target Organs : hematopoietic system

Species : Dog, male
NOAEL : 10 mg/kg
LOAEL : 28 mg/kg
Application Route : Oral - feed
Exposure time : 90-days

Target Organs : hematopoietic system, Liver

### ethanediol:

Species : Rat NOAEL : 150 mg/kg





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Application Route : Oral Exposure time : 12 Months

Species : Dog

NOAEL : > 2.200 - < 4.400 mg/kg

Application Route : Dermal Exposure time : 4 Weeks

Method : OECD Test Guideline 410

toluene:

Species : Rat
NOAEL : 625 mg/kg
Application Route : Oral

Symptoms : central nervous system effects

Species : Rat
NOAEL : 0,098 mg/l
Application Route : Inhalation
Test atmosphere : vapor

Species : Rat
LOAEL : 2,261 mg/l
Application Route : Inhalation
Test atmosphere : vapor

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** 

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

**Components:** 

Sulfentrazone:

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

toluene:

May be fatal if swallowed and enters airways.

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**Neurological effects** 

**Components:** 

Sulfentrazone:

Neurotoxity observed in animals studies

**Further information** 

**Product:** 

Remarks : No data available

**SECTION 12. ECOLOGICAL INFORMATION** 

**Ecotoxicity** 

**Product:** 

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 56,57 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 36,82 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (algae)): 0,00676 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to soil dwelling or-

ganisms

Method: OECD Test Guideline 216

Remarks: No significant adverse effect on Nitrogen minerali-

zation.

Method: OECD Test Guideline 217

Remarks: No significant adverse effect on Carbon mineraliza-

tion.

LC50 (Eisenia fetida (earthworms)): > 1.000 mg/kg

Exposure time: 14 d

Method: OECD Test Guideline 207

Toxicity to terrestrial organ-

isms

LD50 (Coturnix japonica (Japanese quail)): > 2.000 mg/kg

Exposure time: 14 d

Method: US EPA Test Guideline OPPTS 850.2100

LD50 (Apis mellifera (bees)): 130,4 µg/bee

Exposure time: 48 d

Method: OECD Test Guideline 214

**Ecotoxicology Assessment** 

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.





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Components:

diuron (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 14,7 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 22,6 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

EC50 (Daphnia magna (Water flea)): 1,4 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

EC50 (Scenedesmus subspicatus): 22 μg/l

Exposure time: 72 h

NOEC (Scenedesmus subspicatus): 3,2 µg/l

Exposure time: 72 h

M-Factor (Acute aquatic tox-

icity)

10

Toxicity to fish (Chronic tox-

icity)

NOEC (Danio rerio (zebra fish)): 1,19 µg/l

Exposure time: 21 d

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 0,56 mg/l

Exposure time: 21 d

M-Factor (Chronic aquatic

toxicity)

10

Toxicity to microorganisms : EC50

EC50 (Anabaena flos-aquae (cyanobacterium)): 30,9 µg/l

Exposure time: 72 h

NOEC (Anabaena flos-aquae (cyanobacterium)): 10 µg/l

Exposure time: 72 h

Toxicity to soil dwelling or-

ganisms

NOEC (Eisenia fetida (earthworms)): 21,3 mg/kg

Toxicity to terrestrial organ-

isms

Test substance: No data available

Sulfentrazone:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 120 mg/l

Exposure time: 96 h
Test Type: flow-through test

Method: EPA OPP 72-1

LC50 (Lepomis macrochirus (Bluegill sunfish)): 93,8 mg/l

Exposure time: 96 h

Test Type: flow-through test Method: EPA OPP 72-1

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Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 60,4 mg/l

Exposure time: 48 h

Test Type: flow-through test

NOEC (Daphnia magna (Water flea)): 14,1 mg/l

Exposure time: 48 h

Test Type: flow-through test

Toxicity to algae/aquatic

plants

EC50 (algae): 32,8 mg/l Exposure time: 72 h

EC50 (Pseudokirchneriella subcapitata (green algae)): 0,031

mg/l

Exposure time: 120 h

EC50 (Lemna gibba (duckweed)): 0,0288 mg/l

Exposure time: 14 d

EC50 (Navicula pelliculosa (Diatom)): 0,042 mg/l

Exposure time: 120 h

Toxicity to fish (Chronic tox-

icity)

NOEC (Fish): 5,9 mg/l

Exposure time: 21 d

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC (Crustaceans): 0,51 mg/l

Exposure time: 21 d

Toxicity to terrestrial organ-

isms

LD50 (Anas platyrhynchos (Mallard duck)): > 5.620 ppm

End point: Acute oral toxicity

NOEL (Anas platyrhynchos (Mallard duck)): 3.160 ppm

End point: Acute oral toxicity

LD50 (Colinus virginianus (Bobwhite quail)): > 5.620 ppm

End point: Acute oral toxicity

NOEL (Colinus virginianus (Bobwhite quail)): 5.620 ppm

End point: Acute oral toxicity

NOEL (Colinus virginianus (Bobwhite quail)): > 100 ppm

End point: Reproduction Test

NOEL (Anas platyrhynchos (Mallard duck)): > 100 ppm

End point: Reproduction Test

LD50 (Apis mellifera (bees)): > 25 µg/bee

End point: Acute oral toxicity

LD50 (Apis mellifera (bees)): > 200 μg/bee

End point: Acute contact toxicity

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**Ecotoxicology Assessment** 

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

ethanediol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 72.860 mg/l

Exposure time: 96 h

Toxicity to daphnia and other

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 100 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

IC50 (Pseudokirchneriella subcapitata (green algae)): 10.940

mg/l

Exposure time: 96 h

Toxicity to fish (Chronic tox-

icity)

(Menidia peninsulae (tidewater silverside)): 1.500 mg/l

Exposure time: 28 d

Toxicity to daphnia and other

aquatic invertebrates (Chron-

ic toxicity)

(Daphnia magna (Water flea)): 33.911 mg/l

Exposure time: 21 d

Toxicity to microorganisms : (activated sludge): > 1.995 mg/l

Exposure time: 30 min Method: ISO 8192

toluene:

Toxicity to fish : LC50 (Fish): 5,5 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50: 3,78 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

NOEC (Skeletonema costatum (marine diatom)): 10 mg/l

Exposure time: 72 h

Toxicity to fish (Chronic tox-

icity)

NOEC (Oncorhynchus kisutch (coho salmon)): 1,4 mg/l

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC (Ceriodaphnia sp.): 0,74 mg/l

Exposure time: 7 d

Toxicity to microorganisms : EC50 (Bacteria): 134 mg/l

Exposure time: 3 h

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

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 16,7

mg/l

Exposure time: 96 h Test Type: static test

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LC50 (Oncorhynchus mykiss (rainbow trout)): 2,15 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 2,9 mg/l

Exposure time: 48 h Test Type: static test

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): 0,070

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0,04

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

M-Factor (Acute aquatic tox-

icity)

10

Toxicity to microorganisms : EC50 (activated sludge): 24 mg/l

Exposure time: 3 h

Test Type: Respiration inhibition Method: OECD Test Guideline 209

EC50 (activated sludge): 12,8 mg/l

Exposure time: 3 h

Test Type: Respiration inhibition Method: OECD Test Guideline 209

Persistence and degradability

Product:

Biodegradability : Result: Not biodegradable

**Components:** 

diuron (ISO):

Biodegradability : Result: Not readily biodegradable.

Photodegradation

Sulfentrazone:

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life (DT50): 2,22 - 9,56 h

Photodegradation : Remarks: Decomposes rapidly in contact with light.

ethanediol:





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Biodegradability : Result: Readily biodegradable.

Biodegradation: 90 - 100 %

Exposure time: 10 d

Method: OECD Test Guideline 301A

toluene:

Biodegradability : Result: Readily biodegradable.

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

Biodegradability : Result: rapidly biodegradable

Method: OECD Test Guideline 301C

**Bioaccumulative potential** 

**Product:** 

Bioaccumulation : Remarks: Product contains substances which are persistent,

bioaccumulative, and toxic (PBT).

Remarks: No data available

**Components:** 

diuron (ISO):

Bioaccumulation : Remarks: Low potential for bioaccumulation

Partition coefficient: n-

octanol/water

Pow: 2,84 (20 °C)

pH: 6,2

Method: OECD Test Guideline 107

Pow: 2,87 (20 °C)

pH: 4,03

Method: OECD Test Guideline 107

Pow: 2,89 (20 °C)

pH: 7,01

Method: OECD Test Guideline 107

Pow: 2,87 (20 °C)

pH: 9,0

Method: OECD Test Guideline 107

Sulfentrazone:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

GLP: yes

Remarks: Low potential for bioaccumulation

Partition coefficient: n-

octanol/water

Pow: 9,8 pH: 7

ethanediol:

Partition coefficient: n- : log Pow: -1,36





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octanol/water

toluene:

Bioaccumulation : Bioconcentration factor (BCF): 90

Partition coefficient: n-

octanol/water

log Pow: 2,73 (20 °C)

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

**Components:** 

diuron (ISO):

Distribution among environ-

mental compartments

Koc: 680 ml/g, log Koc: 2,83 Remarks: Mobile in soils

Stability in soil : Remarks: Very persistent in soil.

Sulfentrazone:

Mobility : Medium: Water

Remarks: Predicted distribution to environmental compart-

ments

Distribution among environ-

mental compartments

Koc: 43 ml/g, log Koc: 1,63

Remarks: Highly mobile in soils

Stability in soil : Remarks: Very persistent in soil.

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

Distribution among environ-

mental compartments

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

Other adverse effects

**Product:** 

Results of PBT and vPvB : Product contains substances which are persistent, bioaccu-

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mulative, and toxic (PBT). assessment

Additional ecological infor-

mation

An environmental hazard cannot be excluded in the event of

unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

#### **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 chemi-

cal or used container.

Send to a licensed waste management company.

Contaminated packaging Empty remaining contents.

> Dispose of as unused product. Do not re-use empty containers.

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 \( \frac{1}{4} \) 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





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**UNRTDG** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S. (Diuron, Sulfentrazone)

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.

(Diuron, Sulfentrazone)

Class : 9 Packing group : III

Labels : Miscellaneous

Packing instruction (cargo : 964

aircraft)

Packing instruction (passen-

ger aircraft)

964

**IMDG-Code** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S. (Diuron, Sulfentrazone)

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. (Diuron, Sulfentrazone)

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.





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#### **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 - : Not applicable

(LINACH)

Brazil. List of chemicals controlled by the Federal Po- : Not applicable

lice

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.

Sulfentrazone

Tall Oil, Polymer with Propylene Glycol and Succinic Anhy-

drride Monopolyisobutylene Derivatives

Sulfurous acid, monosodium salt, reaction products with cre-

sol-formaldehyde-nonylphenol polymer

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**

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Date format : dd.mm.yyyy

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#### 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 : 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; 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

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