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SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE COMPANY OR UNDERTAKING

Chemical product identifica-

tion

: RUGBY® 200 CS

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

Recommended use : Insecticide

Restrictions on use : Use as recommended by the label.

Details of the supplier of the safety data sheet

Company name of supplier : FMC QUIMICA CHILE LTDA

Supplier's address : AVDA VITACURA 2670,

PISO 15, LAS CONDES,

VITACURA, SANTIAGO, CHILE

+56 2 28204200

E-mail address : SDS-Info@fmc.com

Emergency and toxicological

information number in Chile

Chile: Spills: CITUC: +56 2 2247 3600 (24 hours) Fire: 132 (24

hours)

+56-22-5814934 (CHEMTREC - Chile)

1 703 / 741-5970 (CHEMTREC - International)

Medical Emergency Number : Chile: CITUC: +56 2 2635 3800 (24 hours)

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Specific target organ toxicity - :

single exposure

Category 1 (Nervous system)

Specific target organ toxicity - :

repeated exposure

Category 1 (Nervous system)

Short-term (acute) aquatic

hazard

Category 1

Long-term (chronic) aquatic

hazard

Category 1

Label elements

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Hazard pictograms :







Signal Word : DANGER

Hazard Statements : H302 + H332 Harmful if swallowed or if inhaled.

H370 Causes damage to organs (Nervous system).

H372 Causes damage to organs (Nervous system) through

prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements : Prevention:

P260 Do not breathe mist or vapors.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON

CENTER/ doctor if you feel unwell. Rinse mouth.

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 + P311 IF exposed or concerned: Call a POISON

CENTER/ doctor. P391 Collect spillage.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste

disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Systematic chemical	Common Name	CAS-No.	Concentration	Classification
name			or range (%	
			w/w)	
Cadusafos	Cadusafos	95465-99-9	>= 10 - < 20	Acute toxicity (Oral),
				Category 2
				Acute toxicity (Inhala-
				tion), Category 1

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				Acute toxicity (Dermal), Category 1 Specific target organ toxicity - single exposure (Nervous system), Category 1 Specific target organ toxicity - repeated exposure (Nervous system), Category 1 Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 1
Solvent naphtha (petro- leum), heavy arom.; Kerosine — unspecified	Aromatic hydro- carbons	64742-94-5	>= 5 - < 10	Aspiration hazard, Category 1
hexamethylenediamine	hexamethylenedi- amine	124-09-4	>= 1 - < 3	Acute toxicity (Oral), Category 4 Acute toxicity (Dermal), Category 4 Skin corrosion/irritation, Subcategory 1B Serious eye damage/eye irritation, Category 1 Specific target organ toxicity - single exposure (Respiratory system), Category 3
phosphoric acid	Orthophosphoric acid	7664-38-2	>= 1 - < 2,5	Corrosive to Metals, Category 1 Skin corro- sion/irritation, Sub- category 1B Serious eye dam- age/eye irritation, Category 1 Long-term (chronic) aquatic hazard, Cate- gory 2
2-ethylhexanoic acid, copper salt	2-ethylhexanoic acid, copper salt	22221-10-9	>= 0,1 - < 0,25	Acute toxicity (Dermal), Category 4 Serious eye damage/eye irritation, Category 1 Reproductive toxicity,

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				Category 2 Long-term (chronic) aquatic hazard, Cate- gory 1
Naphthenic acids, copper salts	Copper naph- thenate	1338-02-9	>= 0,1 - < 0,25	Flammable liquids, Category 3 Acute toxicity (Oral), Category 4 Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 1

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.

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

ance.

Do not leave the victim unattended.

Inhalation : If unconscious, place in recovery position and seek medical

advice.

If symptoms persist, call a physician.

Skin contact : Wash off with soap and water.

If symptoms persist, call a physician. Wash contaminated clothing before re-use.

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.

Ingestion : Do not induce vomiting without medical advice.

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

delayed

Contains a cholinesterase inhibitor. Symptoms may include nausea, diarrhea, vomiting, decreased appetite, indigestion, muscle cramps, fatigue, insomnia, dizziness, headache, and

lack of energy.

Harmful if swallowed or if inhaled. Causes damage to organs.

Causes damage to organs through prolonged or repeated

exposure.

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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

Do not spread spilled material with high-pressure water

streams.

Hazardous combustion prod-

ucts

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

phosphorus oxides Carbon oxides

Sulfur oxides Ammonia

Related specific hazards : Do not allow run-off from fire fighting to enter drains or water

courses.

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.

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.

Recomendations for fire-

fighters

Firefighters should wear protective clothing and self-contained

breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec: :

tive equipment and emer-

gency procedures

Evacuate personnel to safe areas.

Do not touch or walk through the spilled material.

If it can be safely done, stop the leak. Use personal protective equipment.

Environmental precautions : Prevent further leakage or spillage if safe to do so.

Prevent product from entering drains.

If the product contaminates rivers and lakes or drains inform

respective authorities.

Methods and material 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.

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SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling : 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.

Dispose of rinse water in accordance with local and national

regulations.

Operational and technical

measures

Normal measures for preventive fire protection.

Contact prevention : Avoid contact with skin, eyes and clothing.

Do not inhale aerosol. Provide adequate ventilation. 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, including any incompatibilities

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

place.

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.

Specific end use(s)

Specific use(s) : Registered pesticide to be used in accordance with a label

approved by country-specific regulatory authorities.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible maximum concentration	Basis
Cadusafos	95465-99-9	TWA (Inhalable fraction and vapor)	0,001 mg/m3	ACGIH
Solvent naphtha (petroleum),	64742-94-5	TWA	200 mg/m3	ACGIH

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heavy arom.; Kerosine — un- specified			(total hydrocarbon vapor)	
hexamethylenediamine	124-09-4	TWA	0,5 ppm	ACGIH
phosphoric acid	7664-38-2	TWA	1 mg/m3	ACGIH
		STEL	3 mg/m3	ACGIH

Personal protective equipment

Eye/face protection : Eye wash bottle with pure water

Tightly fitting safety goggles

Skin protection : Impervious clothing

Choose body protection according to the amount and concen-

tration of the dangerous substance at the work place.

Hand protection

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.

Respiratory protection : In the case of dust or aerosol formation use respirator with an

approved filter.

Protective measures : Plan first aid action before beginning work with this product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state : liquid

Form : viscous liquid

Color : light green

Odor : characteristic

Odor Threshold : No data available

pH : 8,4

Concentration: 10 g/l

Melting point/ range : No data available

Boiling point/boiling range : 72 °C

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Flash point : No flash up to boiling point.

Evaporation rate : No data available

Flammability (solid, gas) : 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

Vapor density : No data available

Relative density : 1,05 - 1,07 (20 °C)

Density : 1,0633 g/cm3 (20 °C)

Method: OECD Test Guideline 109

Solubility(ies)

Water solubility : Miscible

Partition coefficient: n-

octanol/water

Not applicable

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity

Viscosity, dynamic : 239,34 mPa.s (20 °C)

Method: OECD Test Guideline 114

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : Non-oxidizing

Other information

Surface tension : 71,97 mN/m, 25 °C, OECD Test Guideline 115

Metal corrosion rate : Not corrosive to metals.

Molecular weight : Not applicable

Self-ignition : No data available

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SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : No decomposition if stored and applied as directed.

tions

Possibility of hazardous reac- : 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.

Hazardous decomposition

products

No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

: LD50(Rat, female): 300 - 2.000 mg/kg Acute oral toxicity

> Method: OECD Test Guideline 423 Symptoms: Fatality, Tremors, prostration

Assessment: The component/mixture is moderately toxic after

single ingestion.

Acute inhalation toxicity LC50(Rat, male and female): > 1,746 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Symptoms: kyphosis, Breathing difficulties Remarks: Highest attainable concentration.

Acute dermal toxicity LD50(Rat, male and female): > 4.000 mg/kg

Method: OECD Test Guideline 402

Symptoms: Tremors Remarks: no mortality

Components:

Cadusafos:

Acute oral toxicity : LD50 (Rat, female): 34 - 51 mg/kg

Method: US EPA Test Guideline OPP 81-1

Symptoms: Diarrhea, hemorrhage

LD50 (Mouse): 71,4 mg/kg

Acute inhalation toxicity LC50 (Rat, male and female): 0,026 mg/l

Exposure time: 4 h

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Test atmosphere: dust/mist

Method: US EPA Test Guideline OPP 81-3 Symptoms: Breathing difficulties, Tremors

Acute dermal toxicity : LD50 (Rabbit, male): 7 - 17 mg/kg

Method: US EPA Test Guideline OPP 81-2

LD50 (Rabbit, female): 5 - 16 mg/kg Method: US EPA Test Guideline OPP 81-2

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

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

Method: OECD Test Guideline 401

Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 4,688 mg/l

Exposure time: 4 h
Test atmosphere: vapor

Assessment: The substance or mixture has no acute inhala-

tion toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

Method: OECD Test Guideline 402

Assessment: The substance or mixture has no acute dermal

toxicity

hexamethylenediamine:

Acute oral toxicity : LD50 (Rat): 1.160 mg/kg

Acute dermal toxicity : LD50 (Rat): 1.900 mg/kg

Method: Regulation (EC) No. 440/2008, Annex, B.3

phosphoric acid:

Acute oral toxicity : LD50 (Rat, female): 2.600 mg/kg

Method: OECD Test Guideline 423

2-ethylhexanoic acid, copper salt:

Acute oral toxicity : LD50 Oral (Rat, female): 2.043 mg/kg

Method: OECD Test Guideline 401

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

Method: OECD Test Guideline 402

Naphthenic acids, copper salts:

Acute oral toxicity : LD50 (Rat, male and female): 300 - 500 mg/kg

Method: OECD Test Guideline 423

Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit, male and female): 3.160 mg/kg

Method: OECD Test Guideline 402

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Symptoms: Lethargy, Diarrhea, anorexia Remarks: Based on data from similar materials

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:

Cadusafos:

Species : Rabbit

Result : No skin irritation

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rabbit

Assessment : Repeated exposure may cause skin dryness or cracking.

Result : No skin irritation

Remarks : Minimal effects that do not meet the threshold for classifica-

tion.

Based on data from similar materials

hexamethylenediamine:

Species : Rabbit

Result : Corrosive after 3 minutes to 1 hour of exposure

Species : in vitro membrane barrier

Result : Corrosive after 3 minutes to 1 hour of exposure

phosphoric acid:

Species : Rabbit
Assessment : Corrosive

Result : Corrosive after 3 minutes to 1 hour of exposure

2-ethylhexanoic acid, copper salt:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

Naphthenic acids, copper salts:

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

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Serious eye damage or eye irritation

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

Product:

Species : Rabbit

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

Result : slight irritation

Components:

Cadusafos:

Species : Rabbit
Method : Draize Test
Result : No eye irritation

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rabbit

Assessment : No eye irritation

Remarks : Minimal effects that do not meet the threshold for classifica-

tion.

Based on data from similar materials

hexamethylenediamine:

Species : Rabbit

Result : Irreversible effects on the eye

phosphoric acid:

Result : Irreversible effects on the eye Remarks : Based on skin corrosivity

2-ethylhexanoic acid, copper salt:

Species : Bovine cornea

Method : OECD Test Guideline 437
Result : Irreversible effects on the eye

Naphthenic acids, copper salts:

Method : in vitro eye irritation test

Result : No eye irritation

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.

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Product:

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

Method OECD Test Guideline 406 Not a skin sensitizer. Result

Components:

Cadusafos:

Routes of exposure Skin contact **Species** Guinea pig

Result Not a skin sensitizer.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Test Type **Maximization Test**

Species Guinea pig

Result Not a skin sensitizer.

Remarks Based on data from similar materials

2-ethylhexanoic acid, copper salt:

Test Type Open epicutaneous test

Guinea pig Species

Method **OECD Test Guideline 406**

Result Does not cause skin sensitization.

Naphthenic acids, copper salts:

Test Type **Maximization Test** Species

Guinea pig

Result Causes sensitization.

Remarks Based on data from similar materials

Germ cell mutagenicity

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

Product:

Genotoxicity in vitro Test Type: Ames test

Method: OECD Test Guideline 471

Result: negative

Test Type: Micronucleus test Genotoxicity in vivo

Species: Mouse

Method: OECD Test Guideline 474

Result: negative

Components:

Cadusafos:

Genotoxicity in vitro Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

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Metabolic activation: with and without metabolic activation

Result: negative

Test Type: Ames test

Metabolic activation: with and without metabolic activation

Result: negative

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Genotoxicity in vitro : Test Type: reverse mutation assay

Method: OECD Test Guideline 471

Result: negative

Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Bone marrow chromosome aberration.

Species: Rat

Application Route: inhalation (vapor)

Result: negative

hexamethylenediamine:

Genotoxicity in vitro : Test Type: Ames test

Result: negative

Test Type: unscheduled DNA synthesis assay

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test

Application Route: inhalation (dust/mist/fume)

Result: negative

Remarks: Based on data from similar materials

phosphoric acid:

Genotoxicity in vitro : Test Type: reverse mutation assay

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

Result: negative

2-ethylhexanoic acid, copper salt:

Genotoxicity in vitro : Test Type: reverse mutation assay

Method: Mutagenicity (Escherichia coli - reverse mutation

assay)

Result: negative GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse

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Application Route: Oral

Method: Mutagenicity (micronucleus test)

Result: negative

Naphthenic acids, copper salts:

Genotoxicity in vitro : Test Type: reverse mutation assay

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse (male and female)
Application Route: Ingestion

Exposure time: 48 h

Method: Mutagenicity (micronucleus test)

Result: negative

Remarks: Based on data from similar materials

Carcinogenicity

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

Components:

Cadusafos:

Carcinogenicity - Assess-

ment

: Animal testing did not show any carcinogenic effects.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rat, male and female
Application Route : inhalation (vapor)
Exposure time : 12 month(s)
NOAEC : 1,8 mg/l
Result : negative

Remarks : Based on data from similar materials

Carcinogenicity - Assess-

ment

: Not classifiable as a human carcinogen.

Reproductive toxicity

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

Components:

Cadusafos:

Reproductive toxicity - As-

sessment

Animal testing showed no reproductive toxicity.

Animal testing showed no developmental toxicity.

hexamethylenediamine:

Effects on fertility : Test Type: Two-generation study

Species: Rat

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Application Route: Oral

General Toxicity Parent: NOAEL: 500 mg/kg body weight

Fertility: NOAEL: 500 mg/kg body weight

Early Embryonic Development: NOAEL: 500 mg/kg body

weight

Symptoms: Reduced body weight

Effects on fetal development : Species: Rat

Developmental Toxicity: NOAEL: 300 mg/kg body weight

Method: OECD Test Guideline 414

Result: Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses

phosphoric acid:

Effects on fertility : Test Type: reproductive and developmental toxicity study

Species: Rat, male and female Application Route: Ingestion

General Toxicity Parent: NOAEL: 500 mg/kg body weight General Toxicity F1: NOAEL: 500 mg/kg body weight

Method: OECD Test Guideline 422

Result: negative

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

Species: Mouse

Application Route: Ingestion

General Toxicity Maternal: NOAEL: 370 mg/kg body weight Developmental Toxicity: NOAEL: 370 mg/kg body weight

Result: negative

Remarks: Based on data from similar materials

2-ethylhexanoic acid, copper salt:

Effects on fertility : Test Type: reproductive and developmental toxicity study

Species: Rat

Application Route: Oral

Effects on fetal development : Test Type: reproductive and developmental toxicity study

Species: Rabbit Application Route: Oral

Reproductive toxicity - As-

sessment

Some evidence of adverse effects on sexual function and

fertility, and/or on development, based on animal experiments.

Naphthenic acids, copper salts:

Effects on fertility : Species: Rat, male and female

Application Route: Ingestion

Method: OECD Test Guideline 416

Result: negative

Remarks: Based on data from similar materials

Species: Rat, male and female Application Route: Ingestion

General Toxicity F1: NOAEL: 100 mg/kg body weight

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Remarks: Based on data from similar materials

Effects on fetal development : Species: Rabbit

Application Route: Ingestion

General Toxicity Maternal: NOAEL: 7,5 mg/kg body weight Developmental Toxicity: NOAEL: 15 mg/kg body weight

Target Organs: Stomach, Kidney Method: OECD Test Guideline 414

Result: positive

Remarks: Based on data from similar materials

Specific particular organ toxicity - single exposure

Causes damage to organs (Nervous system).

Components:

Cadusafos:

Target Organs : Nervous system

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

toxicant, single exposure, category 1.

hexamethylenediamine:

Assessment : May cause respiratory irritation.

Specific particular organ toxicity - repeated exposure

Causes damage to organs (Nervous system) through prolonged or repeated exposure.

Components:

Cadusafos:

Target Organs : Nervous system

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

toxicant, repeated exposure, category 1.

Repeated dose toxicity

Components:

Cadusafos:

Species : Mouse, male
NOAEL : 2,45 mg/kg
LOAEL : 8 mg/kg
Application Route : Oral - feed

Exposure time : 28 d

Dose : 0.83, 2.45, 8.0

GLP : yes

Symptoms : Red blood cell acetylcholinesterase inhibition

Species : Rat, male
LOAEL : 4,7 mg/kg
Application Route : Oral - feed
Exposure time : 28 d

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Dose 0, 4.7, 9.3, 19.6, 39.9, 56.2

GLP yes

Red blood cell acetylcholinesterase inhibition **Symptoms**

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species Rat, male and female

NOAEC 0,9 - 1,8 mg/l **Application Route** inhalation (vapor) Exposure time 12 Months

hexamethylenediamine:

Species Rat

NOEL 335 mg/kg

Application Route Oral

Species Rat

NOAEL 0,01 mg/kg

inhalation (dust/mist/fume) **Application Route**

Target Organs Nose, larynx :

respiratory tract irritation **Symptoms**

phosphoric acid:

Species Rat, male and female

NOAEL 250 mg/kg **Application Route** Oral - gavage Exposure time 42 - 54 d

Method **OECD Test Guideline 422**

2-ethylhexanoic acid, copper salt:

Species Mouse

NOAEL 180 - 205 mg/kg

Application Route Oral Exposure time 13 weeks

Species Rat NOAEL 2 mg/l **Application Route** Inhalation Exposure time 28 d

Method **OECD Test Guideline 412**

Naphthenic acids, copper salts:

Species Mouse, male and female

NOAEL 1.000 mg/l 2.000 mg/l LOAEL Application Route Ingestion

Method Regulation (EC) No. 440/2008, Annex, B.26

Based on data from similar materials Remarks

Inhalation hazard

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

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Components:

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

May be fatal if swallowed and enters airways.

Experience with human exposure

Components:

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Skin contact : Symptoms: Repeated exposure may cause skin dryness or

cracking.

Further information

Product:

Remarks : No data available

Components:

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Remarks : Vapour concentrations above recommended exposure levels

are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Product:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 59,58 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 0,00052 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

EC50 (Daphnia similis (Water flea)): 0,00918 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

EC50 (Selenastrum capricornutum (green algae)): 53,60 mg/l

End point: Growth inhibition

Exposure time: 96 h

Toxicity to soil dwelling or-

ganisms

LC50: 328,91 mg/kg Exposure time: 14 d

19/30

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Species: Eisenia fetida (earthworms)

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.

Toxicity to terrestrial organ-

isms

LD50: 650 mg/kg

Species: Coturnix japonica (Japanese quail)

LD50: 15.35

Exposure time: 48 h

End point: Acute contact toxicity Species: Apis mellifera (bees) Method: OECD Test Guideline 214

Components:

Cadusafos:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,13 mg/l

Exposure time: 96 h

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0,14 - 0,21

mg/l

Exposure time: 96 h

LC50 (Salmo gairdneri): 0,11 - 0,15 mg/l

Exposure time: 96 h

Test Type: flow-through test

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 0,0004 - 0,0013 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EbC50 (Scenedesmus subspicatus): 4,3 mg/l

Exposure time: 72 h

GLP: yes

M-Factor (Acute aquatic tox-

icity)

1.000

Toxicity to fish (Chronic tox-

icity)

NOEC: 0,0052 mg/l

Exposure time: 21 d

Species: Fish

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC: 0,00023 mg/l Exposure time: 21 d

Species: Crustaceans

M-Factor (Chronic aquatic

toxicity)

100

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Toxicity to soil dwelling or-

ganisms

NOEC: 3,2 mg/kg Exposure time: 28 d

Species: Eisenia fetida (earthworms)

GLP: yes

Toxicity to terrestrial organ-

isms

LD50: 1,86 µg/bee Exposure time: 48 h

Species: Apis mellifera (bees)

Remarks: Contact

LD50: 2,07 µg/bee Exposure time: 48 h

Species: Apis mellifera (bees)

Remarks: Oral

LD50: 7,1 - 36,1 mg/kg

Species: Colinus virginianus (Bobwhite quail)

GLP: yes

LD50: 183 - 288 mg/kg

Species: Anas platyrhynchos (Mallard duck)

GLP: yes

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EL50 (Daphnia magna (Water flea)): 1,4 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EL50 (Pseudokirchneriella subcapitata (green algae)): 1 - 3

mg/l

Exposure time: 24 h

Method: OECD Test Guideline 201

Toxicity to microorganisms : LL50 (Tetrahymena pyriformis): 677,9 mg/l

Exposure time: 72 h

Test Type: Growth inhibition

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

EL50: 0,89 mg/l Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

hexamethylenediamine:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1.825 mg/l

Exposure time: 4 d

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 19,8 mg/l

Exposure time: 48 h

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Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): > 100

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

EC10 (Pseudokirchneriella subcapitata (green algae)): 118

Exposure time: 72 h

Method: OECD Test Guideline 201

EC10 (Anabaena flos-aquae (cyanobacterium)): 10 mg/l Toxicity to microorganisms

Exposure time: 72 h

EC50 (Natural microorganism): 291 mg/l

Exposure time: 3 h

phosphoric acid:

Toxicity to fish LC50 (Lepomis macrochirus (Bluegill sunfish)): 3 - 3,25 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

EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 100 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to microorganisms EC50 (activated sludge): > 1.000 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

2-ethylhexanoic acid, copper salt:

Toxicity to fish LC50 (Oryzias latipes (Orange-red killifish)): 180 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

aquatic invertebrates

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 85,4 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

NOEC (Lemna minor (duckweed)): 0,030 mg/l

Exposure time: 7 d

Remarks: Based on data from similar materials

NOEC (Desmodesmus subspicatus (green algae)): 49,3 mg/l

Exposure time: 96 h

Toxicity to microorganisms EC50 (Pseudomonas putida): 112,1 mg/l

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Exposure time: 17 h Method: DIN 38 412 Part 8

Toxicity to fish (Chronic tox-

icity)

NOEC: 0,0022 mg/l Exposure time: 21 d

Species: Oncorhynchus mykiss (rainbow trout) Remarks: Based on data from similar materials

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC: 25 mg/l Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Chronic Toxicity Value: 75 mg/l

Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Chronic Toxicity Value: 63 mg/l

Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

M-Factor (Chronic aquatic

toxicity)

1

Naphthenic acids, copper salts:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 38,4 µg/l

Exposure time: 96 h

Test Type: flow-through test

Remarks: Based on data from similar materials

LC50 (Pimephales promelas (fathead minnow)): 5,62 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: Based on data from similar materials

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 20 mg/l

Exposure time: 48 h

Test Type: semi-static test

Method: OECD Test Guideline 202

Remarks: Based on data from similar materials

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): 29,6

mg/l

Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

M-Factor (Acute aquatic tox- :

icity)

10

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Toxicity to microorganisms : EC50 (Vibrio fischerii (Bacteria)): 13 mg/l

Exposure time: 48 h

Remarks: Based on data from similar materials

Toxicity to fish (Chronic tox-

icity)

NOEC: 18,9 μg/l

Exposure time: 7 d

Species: Pimephales promelas (fathead minnow)

NOEC: 120 μg/l End point: mortality Exposure time: 64 d Species: Fish

Method: OECD Test Guideline 204

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC: 6,3 μg/l Exposure time: 7 d

Species: Ceriodaphnia dubia (water flea) Remarks: Based on data from similar materials

NOEC: 4 µg/l Exposure time: 7 d

Species: Ceriodaphnia dubia (water flea) Remarks: Based on data from similar materials

M-Factor (Chronic aquatic

toxicity)

10

Persistence and degradability

Product:

Biodegradability : Result: Not readily biodegradable.

Components:

Cadusafos:

Biodegradability : Remarks: Not readily biodegradable.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified: Biodegradability : Result: Readily biodegradable.

: Result: Readily biodegradable. Biodegradation: 58,6 %

Exposure time: 28 d

Method: OECD Test Guideline 301F

Remarks: Based on data from similar materials

hexamethylenediamine:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 82 % Exposure time: 28 d

Method: OECD Test Guideline 301D

phosphoric acid:

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Biodegradability : Remarks: The methods for determining biodegradability are

not applicable to inorganic substances.

2-ethylhexanoic acid, copper salt:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 99 % Exposure time: 28 d

Method: OECD Test Guideline 301E

Naphthenic acids, copper salts:

Biodegradability : Result: Inherently biodegradable.

Remarks: Based on data from similar materials

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Remarks: No data available

Components:

Cadusafos:

Bioaccumulation : Species: Fish

Bioconcentration factor (BCF): 220

Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-

octanol/water

log Pow: 3,9

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Bioaccumulation : Remarks: The product/substance has a potential to bioaccu-

mulate.

Partition coefficient: n-

octanol/water

log Pow: 3,72

Method: QSAR

hexamethylenediamine:

Partition coefficient: n-

octanol/water

: log Pow: 0,35

2-ethylhexanoic acid, copper salt:

Partition coefficient: n-

octanol/water

log Pow: 2,96

Naphthenic acids, copper salts:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)

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Exposure time: 4 d

Bioconcentration factor (BCF): 2

Partition coefficient: n-

octanol/water

log Pow: 7,65

Mobility in soil

Components:

Cadusafos:

Distribution among environmental compartments

Remarks: Moderately mobile in soils

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Distribution among environ-

mental compartments

Remarks: Expected to partition to sediment and wastewater

solids. Moderately volatile.

Other adverse effects

Product:

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.

Components:

phosphoric acid:

Additional ecological infor-

mation

Harmful effects on aquatic organisms also due to pH shift.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment 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, and contaminated material It is prohibited to reuse, bury, burn, or sell containers. Rinsable containers: Triple rinse containers of less than 20 liters and pressure rinse containers of 20 liters or more. Triple rinsing: Add water up to 1/4 of the container's capacity, close and shake for 30 seconds. Pour the rinse water into the mixing tank, considering this volume of water within the recommended volume for mixing preparation. Perform this procedure three times. Pressure rinsing: Activate the pressure rinsing device for 30 seconds, considering the volume of water used as part of the recommended volume for mixing preparation. In

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> both procedures, punctured the container on its base without damaging the label. In all cases, take the empty containers to collection points indicated by the local empty containers pro-

gram.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number UN 3082

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S. (Cadusafos)

Class 9 Ш Packing group Labels 9 Environmentally hazardous yes

IATA-DGR

UN/ID No. UN 3082

Proper shipping name Environmentally hazardous substance, liquid, n.o.s.

(Cadusafos)

9 Class Packing group Ш

Miscellaneous Labels 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. (Cadusafos)

Class 9 Packing group Ш Labels 9 **EmS Code**

F-A, S-F Marine pollutant yes

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

Domestic regulation

NCh382

UN number UN 3082

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S. (Cadusafos)

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Class : 9
Packing group : III
Labels : 9
Environmentally hazardous : yes

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

National Regulations

Chile. Decree 190. Carcinogenic Substances, Hazard: Not applicable

ous Waste Management.

Decree 1358 - Establishment of rules governing the control measures of precursors and essential chemi-

cals.

methanol methyl acetate sodium sulphate sodium hydroxide

Resolution 408/16 Exempt, Approving List of Health :

Hazardous Substances

: Included in list of Article 3, item a)

Other regulations

Decree 43/2015, Approving Regulation on Storage of Hazardous Substances

NCh 2245:2021 Safety data sheet for chemical products - Content and order of sections

NCh 2190:2019 Land transport of dangerous goods - Hazard identification marks

NCh 382:2021 Dangerous Goods - Classification

Decree 57 of 2019, Regulation on Classification, Labeling, and Notification of Hazardous Chemicals and Mixtures

D.S. 148/03 Sanitary Regulation on hazardous wastes handling

D.S. 298/94 Regulation on transport of hazardous cargo on streets and roads

D.S. 594/99 Regulation on sanitary and environmental basic conditions at work places

Exempt Resolution 15 of 2023 approving the List of Hazardous Substances Subject to Import Process

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

TCSI : On the inventory, or 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.

Cadusafos

ENCS : Not in compliance with the inventory

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ISHL : Not in compliance with the inventory

KECI : On the inventory, or 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

The receiver should verify the possible existence of legal regulations applicable to chemical.

SECTION 16. OTHER INFORMATION

Revision Date : 15.05.2025

Date format : dd.mm.yyyy

Full text of H-Statements

Abbreviations and acronyms

Acute Tox. : Acute toxicity

Aquatic Acute : Short-term (acute) aquatic hazard Aquatic Chronic : Long-term (chronic) aquatic hazard

Asp. Tox. : Aspiration hazard
Flam. Liq. : Flammable liquids
Met. Corr. : Corrosive to Metals
Repr. : Reproductive toxicity

Serious eye damage/eye

irritation

Serious eye damage/eye irritation

Skin corrosion/irritation : Skin corrosion/irritation

STOT RE : Specific target organ toxicity - repeated exposure STOT SE : Specific target organ toxicity - single exposure ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average ACGIH / STEL : Short-term exposure limit

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

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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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