

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)



Trade name : TONALID®
Revision date : 07.03.2014
Print date : 26-05-2015

Version (Revision) : 2.0.6 (2.0.5)

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

1.1 Product identifier

TONALID® (W01052)
7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; REACH registration No. : 01-2119539433-40 ; CAS No. : 1506-02-1 ; EC No. : 216-133-4

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

Fragrance ingredient which may be used in fragrance compounds according to the current legislation and IFRA rules.
Reserved for industrial and professional use. Short title of the exposure scenario

Uses advised against

Not intended for oral consumption.

1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor)

PFW Aroma Chemicals B.V.

Street : Veemweg 29-31

Postal code/city : NL - 3371 MT Barneveld

Telephone : +31 342 40 77 00

Telefax : +31 342 40 77 20

Information contact : pfw@pfw.nl

1.4 Emergency telephone number

+31 342 40 77 93

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Aquatic Acute 1 ; H400 - Hazardous to the aquatic environment : Category 1 ; Very toxic to aquatic life.
Aquatic Chronic 1 ; H410 - Hazardous to the aquatic environment : Category 1 ; Very toxic to aquatic life with long lasting effects.

Acute Tox. 4 ; H302 - Acute toxicity (oral) : Category 4 ; Harmful if swallowed.

Hazard classes and hazard categories

Acute Tox. 4 (Oral) · Aquatic Acute 1 · Aquatic Chronic 1

Classification according to Directive 67/548/EEC or 1999/45/EC

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. · Harmful if swallowed.

N ; R 50/53 · Xn ; R 22

2.2 Label elements

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

Hazard pictograms



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Environment (GHS09) · Exclamation mark (GHS07)

Signal word

Warning

Hazard statements

H302 Harmful if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P264 Wash hands thoroughly after handling.
P273 Avoid release to the environment.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P391 Collect spillage.
P501 Dispose of contents/container to a chemical waste treatment facility or recycling plant.

2.3 Other hazards

None

SECTION 3: Composition / information on ingredients

3.1 Substances

Substance name : 7-acetyl-1,1,3,4,4,6-hexamethyltetralin

EC No. : 216-133-4

REACH No. : 01-2119539433-40

CAS No. : 1506-02-1

Purity : ≥ 97 % [mass]

Synonymes

IUPAC : 1-(3,5,5,6,8,8-Hexamethyl-5,6,7,8-tetrahydronaphthalen-2-yl)ethanone

INCI : ACETYL HEXAMETHYL TETRALIN

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Medical treatment necessary. Remove victim out of the danger area. Put victim at rest, cover with a blanket and keep warm. Do not leave affected person unattended. If unconscious place in recovery position and seek medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact

Wash immediately with: Water Do not wash with: Solvents/Thinner

After eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

Rinse mouth thoroughly with water. Call a physician in any case! Let water be drunken in little sips (dilution effect). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

No information available.

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4.3 Indication of any immediate medical attention and special treatment needed

None

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

alcohol resistant foam. Extinguishing powder. Water mist

Unsuitable extinguishing media

Strong water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

In case of fire may be liberated: Carbon dioxide (CO₂) Carbon monoxide (CO).

5.3 Advice for firefighters

Do not inhale explosion and combustion gases. Use water spray jet to protect personnel and to cool endangered containers. Do not allow run-off from fire-fighting to enter drains or water courses. Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.

Special protective equipment for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe dust. Provide adequate ventilation. Remove persons to safety. See protective measures under point 7 and 8.

6.2 Environmental precautions

Ensure all waste water is collected and treated via a waste water treatment plant. In case of entry into waterways, soil or drains, inform the responsible authorities. Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life. Clear up spills immediately and dispose of waste safely.

6.3 Methods and material for containment and cleaning up

Wet clean or vacuum up solids. Avoid generation of dust. Collect in closed and suitable containers for disposal.

6.4 Reference to other sections

See protective measures under point 7 and 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. Provide adequate ventilation as well as local exhaustion at critical locations. All work processes must always be designed so that the following is as low as possible: eye contact, skin contact. Wear personal protection equipment (see chapter 8). Ensure operatives are trained to minimise exposures.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Ensure adequate ventilation of the storage area. Keep/Store only in original container. Use isolated drainage to prevent discharge to soil. Restrict access to stockrooms. Never use pressure to empty container.

Hints on joint storage

Keep away from oxidising agent . acid and alkali .

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Storage class : 13
Storage class (TRGS 510) : 11

7.3 Specific end use(s)
None

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

To date, no national critical limit values exist.

DNEL/DMEL and PNEC values

DNEL/DMEL

Limit value type :	DNEL/DMEL (Consumer) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Dermal
Exposure frequency :	Short term (acute), systemic
Limit value :	0,915 mg/kg bw/day
Literature information :	Chemical Safety Report
Limit value type :	DNEL/DMEL (Consumer) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Dermal
Exposure frequency :	Long Term (repeated), systemic
Limit value :	0,305 mg/kg bw/day
Literature information :	Chemical Safety Report
Limit value type :	DNEL/DMEL (Consumer) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Inhalation
Exposure frequency :	Short term (acute), systemic
Limit value :	0,131 mg/m ³
Literature information :	Chemical Safety Report
Limit value type :	DNEL/DMEL (Consumer) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Inhalation
Exposure frequency :	Long Term (repeated), systemic
Limit value :	0,0435 mg/m ³
Literature information :	Chemical Safety Report
Limit value type :	DNEL/DMEL (Consumer) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Oral
Exposure frequency :	Short term (acute), systemic
Limit value :	1,2 mg/kg bw/day
Literature information :	Chemical Safety Report
Limit value type :	DNEL/DMEL (Consumer) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Oral
Exposure frequency :	Long Term (repeated), systemic
Limit value :	0,0125 mg/kg bw/day
Literature information :	Chemical Safety Report
Limit value type :	DNEL/DMEL (Industrial) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Dermal
Exposure frequency :	Short term (acute), systemic
Limit value :	1,8 mg/kg bw/day

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Literature information : Chemical Safety Report
Limit value type : DNEL/DMEL (Industrial) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Exposure route : Dermal
Exposure frequency : Long Term (repeated), systemic
Limit value : 0,61 mg/kg bw/day

Literature information : Chemical Safety Report
Limit value type : DNEL/DMEL (Industrial) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Exposure route : Inhalation
Exposure frequency : Short term (acute), systemic
Limit value : 0,525 mg/m³

Literature information : Chemical Safety Report
Limit value type : DNEL/DMEL (Industrial) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Exposure route : Inhalation
Exposure frequency : Long Term (repeated), systemic
Limit value : 0,175 mg/m³

Literature information : Chemical Safety Report

PNEC

Limit value type : PNEC aquatic, freshwater (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Exposure route : Water (Including sewage plant)
Limit value : 2,2 µg/l

Literature information : Chemical Safety Report
Limit value type : PNEC aquatic, intermittent release (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Exposure route : Water (Including sewage plant)
Limit value : 0,72 µg/l

Literature information : Chemical Safety Report
Limit value type : PNEC aquatic, marine water (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Exposure route : Water (Including sewage plant)
Limit value : 0,22 µg/l

Literature information : Chemical Safety Report
Limit value type : PNEC sediment, freshwater (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Limit value : 1,72 mg/kg sediment dw

Literature information : Chemical Safety Report
Limit value type : PNEC sediment, marine water (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Limit value : 0,345 mg/kg sediment dw

Literature information : Chemical Safety Report
Limit value type : PNEC soil, freshwater (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Exposure route : Soil
Limit value : 0,31 mg/kg soil dw

Literature information : Chemical Safety Report
Limit value type : PNEC Secondary Poisoning (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

Limit value : 1,1 mg/kg food

Literature information : Chemical Safety Report
Limit value type : PNEC sewage treatment plant (STP) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)

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Exposure route : Water (Including sewage plant)
Limit value : 2,2 mg/l
Literature information : Chemical Safety Report

8.2 Exposure controls

When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work.

Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Personal protection equipment

Eye/face protection

The use of safety glasses is recommended.

Skin protection

Hand protection

Use protective gloves. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. Breakthrough times and swelling properties of the material must be taken into consideration.

Suitable material : NR (natural rubber, natural latex)

Breakthrough time (maximum wearing time) : >480 min.

Thickness of the glove material : 1.60 mm

Body protection

Overall

Respiratory protection

Respiratory protection necessary at: exceeding exposure limit values Type : (FFP2) Handling larger quantities.

Container device with compressed air (DIN EN 137) / Filtering device (full mask or mouthpiece) with filter: Filter types: A, B, E, K. Class 1: Maximum permitted contaminant concentration in inhaled air = 1000 mL/m³ (0.1 % by vol.); class 2: maximum permitted contaminant concentration in inhaled air = 5000 mL/m³ (0.5 % by vol.); class 3: maximum permitted contaminant concentration in inhaled air = 10000 mL/m³ (1.0 % by vol.)

General health and safety measures

Full-face mask or mouthpiece with particulate filter: maximum use concentration for substances with exposure limits: P1 filter: up to a max. of 4 times the exposure limit. P2 filter: up to a max. of 15 times the exposure limit. P3 filter: up to a max. of 400 times the exposure limit.

Environmental exposure controls

Send to a hazardous waste incinerator facility under observation of official regulations.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Odour threshold in air : No data available

Safety relevant basis data

Physical state :			solid	
Colour :			off-white	
Odour :			musky	
Melting point/melting range :	(1013 hPa)	>	54	°C
Boiling temperature/boiling range :	(1013 hPa)		326	°C
Decomposition temperature :	(1013 hPa)		No data available	
Flash point (Closed Cup) :		>	100	°C
Flammability (solid, gas) :			none	DIN EN 51578
Auto-ignition temperature :		>	400	°C

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Evaporation rate :			slowly evaporating
Lower explosion limit :			No data available
Upper explosion limit :			No data available
Explosive properties :			none
Vapour pressure :	(50 °C)	ca.	0,012 hPa
Vapour pressure :	(25 °C)		0,00068 hPa
Vapour Density	(25 °C)		1
Density :	(20 °C)	ca.	0,96 g/cm ³
Solubility in water :	(25 °C)		1,25 mg/l
pH value :			not applicable
Log Pow :			5,4
Viscosity :	(20 °C)		not applicable
Oxidising properties :			none

9.2 Other information

Justification for data waiving. pH value: The substance is not soluble in water. Viscosity: Testing can be waived because substance is a solid.

SECTION 10: Stability and reactivity

10.1 Reactivity

No known hazardous reactions.

10.2 Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3 Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.

10.4 Conditions to avoid

Do not expose to temperatures above 50°C in original container.

10.5 Incompatible materials

Exothermic reaction with: oxidising agent strong acid . strong alkali

10.6 Hazardous decomposition products

Decomposition with: Carbon dioxide (CO₂). Carbon monoxide (CO).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute effects

Acute oral toxicity

Parameter :	LD50 (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Oral
Species :	Rat
Effective dose :	920 mg/kg
Methode :	OECD 401 Acute Oral Toxicity

Acute dermal toxicity

Parameter :	LD50 (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route :	Dermal
Species :	Rat
Effective dose :	7940 mg/kg

Irritant and corrosive effects

Primary irritation to the skin

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Parameter : Irritation of the skin (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Parameter : human
Result : No irritation
Parameter : Irritation of the skin (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Parameter : Rabbit
Result : No irritation
Methode : Annex V of EEC Directive 79/831

Irritation to eyes

Parameter : Irritation of the eyes (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Parameter : Rabbit
Result : No irritation
Methode : OECD 405 Acute Eye Irritation/Corrosion

Irritation to respiratory tract

Parameter : Irritation to respiratory tract (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Parameter : human
Result : No irritation

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Carcinogenicity

Parameter : Carcinogenicity (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Species : Rat
Test result : negative

Germ cell mutagenicity/Genotoxicity

In vitro mutagenicity

Parameter : Chromosomal aberrations mammalian cells (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Exposure route : In vitro mutagenicity
Species : Hamster cells
Test result : Negative (without metabolic activation). Negative (with metabolic activation).
Methode : OECD 473 in vitro mammalian chromosome aberration test

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity

Acute (short-term) algae toxicity

Parameter : EC50 (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Species : Daphnia sp. Acute immobilisation test
Evaluation parameter : semi-static
Effective dose : 0,244 mg/l
Exposure time : 21 days
Methode : OECD 211

Terrestrial toxicity

Acute earthworm toxicity

Parameter : Acute earthworm toxicity (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Species : Eisenia foetida
Evaluation parameter : Chronical earthworm toxicity (reproduction)
Effective concentration : 105 mg/kg

12.2 Persistence and degradability

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Abiotic degradation

Abiotic degradation in Water

Hydrolysis

Parameter : Hydrolysis (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Type : pH=4, 7 and 9
Rate constant
Result : ca. 0 d⁻¹
5 days
Methode : OECD 111

Biodegradation

Analytical method : Biodegradation (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Evaluation : Inherently biodegradable, not fulfilling specific criteria.

12.3 Bioaccumulative potential

Parameter : Partition coefficient n-octanol/water (log P O/W) (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Partition coefficient n-octanol /water (log P O/W)
Result : 5,7
Methode : OECD 117 High Performance Liquid Chromatography (HPLC)
Parameter : Bioconcentration (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Species : Lepomis macrochirus (Bluegill)
Bioconcentration factor (BCF)
Result : 597 l/kg ww
Methode : OECD 305 Bioaccumulation in Fish: Aqueous and Dietary Exposure
Based on the n-octanol/water partition coefficient accumulation in organisms is possible.

12.4 Mobility in soil

Adsorption/Desorption

Parameter : Adsorption coefficient (7-acetyl-1,1,3,4,4,6-hexamethyltetralin ; CAS No. : 1506-02-1)
Log K_{oc} : ca. 29512

12.5 Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6 Other adverse effects

Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.

12.7 Further ecological information

None

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Send to a hazardous waste incinerator facility under observation of official regulations.

SECTION 14: Transport information

14.1 UN number

UN 3077

14.2 UN proper shipping name

Land transport (ADR/RID)

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (acetyl hexamethyl tetralin)

Sea transport (IMDG)

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ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (acetyl hexamethyl tetralin)

Air transport (ICAO-TI / IATA-DGR)

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (acetyl hexamethyl tetralin)

14.3 Transport hazard class(es)

Land transport (ADR/RID)

Class(es) : 9
Classification code : M7
Hazard identification number (Kemler No.) : 90
Tunnel restriction code : E
Special provisions : LQ 5 kg · E 1
Hazard label(s) : 9 / N

Sea transport (IMDG)

Class(es) : 9
EmS-No. : F-A / S-F
Special provisions : LQ 5 kg · E 1 · Segregation Group: No/none
Hazard label(s) : 9 / N

Air transport (ICAO-TI / IATA-DGR)

Class(es) : 9
Special provisions : E 1
Hazard label(s) : 9 / N

14.4 Packing group

III

14.5 Environmental hazards

Land transport (ADR/RID) : Yes
Sea transport (IMDG) : Yes (P)
Air transport (ICAO-TI / IATA-DGR) : Yes

14.6 Special precautions for user

None

SECTION 15: Regulatory information

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

National regulations

Water hazard class (WGK)

Class : strongly water pollutant according VwVwS

Other regulations, restrictions and prohibition regulations

TSCA (USA) : listed
CEPA (Canada) : DSL
Asia-PAC : listed
India : not applicable
ENCS (Japan) : listed 4 - 1179
ISHL (Japan) : chemical name published
IECSC (China) : listed
ECL (Korea) : listed KE 33464
PICCS (Philippines) : listed
AICS (Australia) : listed

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NZIoC (New Zealand) : group standard
FLAVIS (EU) : not listed
CoE (EU) : not listed
JECFA (UN) : not listed
FEMA (USA) : not listed
GRAS (USA) : not listed

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out. Further information: see exposure scenarios attached to this safety data sheet.

SECTION 16: Other information

16.1 Indication of changes

None

16.2 Abbreviations and acronyms

a.i. = Active ingredient; ACGIH = American Conference of Governmental Industrial Hygienists (US); ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road; AFFF = Aqueous Film Forming Foam; AICS = Australian Inventory of Chemical Substances; AISE = International Association for Soaps, Detergents and Maintenance Products (joint project of AISE and CEFIC); AOAC = AOAC International (formerly Association of Official Analytical Chemists); aq. = Aqueous; Asia-PAC = Asia Pacific; ASTM = American Society of Testing and Materials (US); atm = Atmosphere(s); B.V. = Beperkt Venootschap (LTD = Limited); BCF = Bioconcentration Factor; bp = Boiling point at stated pressure; bw = Body weight; ca = (Circa) about; CAS No = Chemical Abstracts Service Number (see ACS - American Chemical Society); CEFIC = European Chemical Industry Council (established 1972); CEPA = Canadian Environmental Protection Act (CAN); CEPA = Canadian Environmental Protection Act (Canada); CIPAC = Collaborative International Pesticides Analytical Council; CLP = REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.; CoE = Council of Europe (EU); Conc = Concentration; cP = CentiPoise; CSNN = Chemical Substance Nomination & Notification (Taiwan); cSt = Centistokes; d = Day(s); DIN = Deutsches Institut für Normung e.V.; DNEL = Derived No-Effect Level; DSL = Domestic Substances List; DT50 = Time for 50% loss; half-life; EbC50 = Median effective concentration (biomass, e.g. of algae); EC = European Community; European Commission; EC50 = Median effective concentration; ECL = Existing Chemicals List (Korea); EINECS = European Inventory of Existing Commercial Chemical Substances (EU, outdated, now replaced by EC Number); ELINCS = European List of Notified (New) Chemicals; ENCS = Existing and New Chemical Substances Inventory (Japan); ErC50 = Median effective concentration (growth rate, e.g. of algae); EU = European Union; EWC = European Waste Catalogue; FAO = Food and Agriculture Organization (United Nations); FEMA = Flavor & Extract Manufacturers Association (USA); FLAVIS = Flavour Information System (EU); GIFAP = Groupement International des Associations Nationales de Fabricants de Produits Agrochimiques (now CroPLife International); GRAS = Generally Recognized As Safe (USA); h = Hour(s); hPa = HectoPascal (unit of pressure); IARC = International Agency for Research on Cancer; IATA = International Air Transport Association; IC50 = Concentration that produces 50% inhibition; IECSC = Inventory of Existing Chemical Substances (China); IMDG Code = International Maritime Dangerous Goods Code; IMO = International Maritime Organization; ISO = International Organization for Standardization; IUCLID = International Uniform Chemical Information Database; IUPAC = International Union of Pure and Applied Chemistry; IVIS = In-Vitro Irritancy Score; JECFA = Joint Expert Committee on Food Additives (United Nations); kg = Kilogram; Kow = Distribution coefficient between n-octanol and water; kPa = KiloPascal (unit of pressure); LC50 = Concentration required to kill 50% of test organisms; LD50 = Dose required to kill 50% of test organisms; LEL = Lower Explosive Limit/Lower Explosion Limit; LOAEL = Lowest observed adverse effect level; LVE = Low Volume Exemption; mg = Milligram; min = Minute(s); ml = Milliliter; mmHg = Pressure equivalent to 1 mm of mercury (133.3 Pa); mp = Melting point; MRL = Maximum Residue Limit; MSDS = Material Safety Data Sheet; n.o.s. = Not Otherwise Specified; NDSL = Non-Domestic Substances List; NIOSH = National Institute for Occupational Safety and Health (US); NOAEL = No Observed Adverse Effect Level; NOEC = No observed effect concentration; NOEL = No Observable Effect Level; NOx = Oxides of Nitrogen; NZIoC = New Zealand Inventory of Chemicals; OECD = Organization for Economic Cooperation and Development; OEL = Occupational Exposure Limits; Pa = Pascal (unit of pressure); PBT = Persistent, Bioaccumulative or Toxic; pH = -log₁₀ hydrogen ion concentration; PICCS = Philippine Inventory of Chemicals and Chemical Substances; pKa = -log₁₀ acid dissociation constant; PNEC = Predicted No Effect Concentration; POPs = Persistent Organic Pollutants; ppb = Parts per billion; PPE = Personal Protection Equipment; ppm = Parts per million; ppt = Parts per trillion; PVC = Polyvinyl Chloride; QSAR = Quantitative

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Trade name : TONALID®
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Structure-Activity Relationship; REACH = Registration, Evaluation and Authorization of CHemicals (EU, see NCP); SI = International System of Units; STEL = Short-Term Exposure Limit; tech. = Technical grade; TSCA = Toxic Substances Control Act (US); TSCA = Toxic Substances Control Act (USA); TWA = Time-Weighted Average; UN = United Nations; vPvB = Very Persistent and Very Bioaccumulative; VwVwS = Verwaltungsvorschrift wassergefährdender Stoffe; WHO = World Health Organization = OMS; y = Year(s);

16.3 Key literature references and sources for data

None

16.4 Relevant R-, H- and EUH-phrases (Number and full text)

H302	Harmful if swallowed.
H410	Very toxic to aquatic life with long lasting effects.
22	Harmful if swallowed.
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

16.5 Training advice

None

16.6 Additional information

None

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.
