

SAFETY DATA SHEET

(GHS, Appendix 4)

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : Tonalide

EC N° : 216-133-4

CAS N° : 1506-02-1

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

Industrial-grade aromatic raw material, not intended for retail sale

1.3. Details of the supplier of the safety data sheet

Registered company name : Aromatics Original Material Co., Ltd. Address : 3/8 1st floor Bangwaek Rd, Bangpai, Bangkae, Bangkok 10160 Thailand.

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

GHS compliant.

Acute oral toxicity, Category 4 (Acute Tox. 4, H302).

Hazardous to the aquatic environment - Acute hazard, Category 1 (Aquatic Acute 1, H400).

Hazardous to the aquatic environment - Chronic hazard, Category 1 (Aquatic Chronic 1, H410).

2.2. Label elements

GHS compliant.

Hazard pictograms :



GHS07



GHS09

Signal Word :

WARNING

Product identifier (list of classified components):

CAS 1506-02-1 1-(5,6,7,8-TETRAHYDRO-3,5,5,6,8,8-HEXAMETHYL-2-NAPHTHYL)ETHAN-1-ONE (FIXOLID)

Hazard statements :

H302 Harmful if swallowed.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements - Response :

P391 Collect spillage.

Precautionary statements - Disposal :

P501

Dispose of contents/container in accordance with local regulation.

2.3. Other hazards**SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS****3.1. Substances****Composition :**

Identification	Classification GHS	Note	%
CAS: 1506-02-1 EC: 216-133-4 REACH: 01-2119539433-40-0000 1-(5,6,7,8-TETRAHYDRO-3,5,5,6,8,8-HEXAMETHYL-2-NAPHTHYL)ETHAN-1-ONE (FIXOLID)	GHS07, GHS09 Wng Acute Tox. 4, H302 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1		100%
CAS: 15323-35-0 EC: 239-360-0 5-ACETYL-1,1,2,3,3,6-HEXAMETHYLINDAN	GHS07, GHS09 Wng Acute Tox. 4, H302 Aquatic Acute 1, H400 M Acute = 10 Aquatic Chronic 1, H410 M Chronic = 1		0 ≤ x % < 1
CAS: 68140-48-7 EC: 268-799-0 5-ACETYL-3-ISOPROPYL-1,1,2,6-TETRAMETHYLINDANE	GHS07, GHS09 Wng Acute Tox. 4, H302 Acute Tox. 5, H313 Skin Irrit. 3, H316 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1		0 ≤ x % < 1

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

4.1. Description of first aid measures**In the event of splashes or contact with eyes :**

Wash thoroughly with fresh, clean water for 15 minutes holding the eyelids open.

If there is any redness, pain or visual impairment, consult an ophthalmologist.

In the event of splashes or contact with skin :

Watch out for any remaining product between skin and clothing, watches, shoes, etc.

In the event of swallowing :

Do not give the patient anything orally.

In the event of swallowing, if the quantity is small (no more than one mouthful), rinse the mouth with water, administer activated medical charcoal and consult a doctor.

Keep the person exposed at rest. Do not force vomiting.

Seek medical attention, showing the label.

If swallowed accidentally, call a doctor to ascertain whether observation and hospital care will be necessary. Show the label.

4.2. Most important symptoms and effects, both acute and delayed

No data available.

4.3. Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5 : FIREFIGHTING MEASURES

Non-flammable.

5.1. Extinguishing media**Suitable methods of extinction**

In the event of a fire, use :

- sprayed water or water mist

Unsuitable methods of extinction

In the event of a fire, do not use :

- water jet

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO₂)

5.3. Advice for firefighters

No data available.

SECTION 6 : ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Consult the safety measures listed under headings 7 and 8.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, diatomaceous earth in drums for waste disposal.

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Retrieve the product by mechanical means (sweeping/vacuuming).

6.4. Reference to other sections

No data available.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the substance is handled.

7.1. Precautions for safe handling

Always wash hands after handling.

Remove and wash contaminated clothing before re-using.

Ensure that there is adequate ventilation, especially in confined areas.

Fire prevention :

Handle in well-ventilated areas.

Prevent access by unauthorised personnel.

Recommended equipment and procedures :

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Packages which have been opened must be reclosed carefully and stored in an upright position.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the substance is used.

7.2. Conditions for safe storage, including any incompatibilities

No data available.

Storage

Keep the container tightly closed in a dry, well-ventilated place.

Keep away from food and drink, including those for animals.

The floor must be impermeable and form a collecting basin so that, in the event of an accidental spillage, the liquid cannot spread beyond this area.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

No data available.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters**

No data available.

8.2. Exposure controls**Personal protection measures, such as personal protective equipment**

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :



Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Avoid contact with eyes.

Use eye protectors designed to protect against liquid splashes

Before handling, wear safety goggles in accordance with standard ISO 16321.

Before handling powders or dust emission, wear mask goggles in accordance with standard ISO 16321.

- Hand protection

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN ISO 374-1.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

Type of gloves recommended :

- Butyl Rubber (Isobutylene-isoprene copolymer)

- Body protection

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

- Respiratory protection

Avoid inhaling dust.

Type of FFP mask :

Wear a disposable half-mask dust filter in accordance with standard EN149/A1.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

No data available.

Physical state

Physical state : Solid in granules.

Colour

Unspecified

Odour

Odour threshold : Not stated.

Melting point

Melting point/melting range : Not specified.

Freezing point

Freezing point / Freezing range : Not stated.

Boiling point or initial boiling point and boiling range

Boiling point/boiling range : Not specified.

Flammability

Non-flammable.

Lower and upper explosion limit

Explosive properties, lower explosivity limit (%) : Not stated.

Explosive properties, upper explosivity limit (%) : Not stated.

Flash point

Flash Point Interval : > 93°C
Method for determining the flash point:
ASTM D 93-15 (Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester).

Auto-ignition temperature

Self-ignition temperature : Not specified.

Decomposition temperature

Decomposition point/decomposition range : Not specified.

pH

pH : Not relevant.

pH (aqueous solution) : Not stated.

Kinematic viscosity

Viscosity : Not stated.

Solubility

Water solubility : Insoluble.

Fat solubility :	Not stated.
Partition coefficient n-octanol/water (log value)	
Partition coefficient: n-octanol/water :	Not stated.
Vapour pressure	
Vapour pressure (50°C) :	Not stated.
Density and/or relative density	
Density :	NA Method for determining the density : NF ISO 279:1999 (T75-111).
Relative vapour density	
Vapour density :	Not stated.
9.2. Other information	
Index of refraction :	NA Method of determining the refractive index : NF ISO 280:1999 (T75-112)
9.2.1. Information with regard to physical hazard classes	
No data available.	
9.2.2. Other safety characteristics	
No data available.	

SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

This substance is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

When exposed to high temperatures, the substance can release hazardous decomposition products, such as carbon monoxide and dioxide, fumes and nitrogen oxide.

10.4. Conditions to avoid

Avoid :

- formation of dusts

10.5. Incompatible materials

No data available.

10.6. Hazardous decomposition products

The thermal decomposition may release/form :

- carbon monoxide (CO)
- carbon dioxide (CO₂)

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

11.1.1. Substances

a) Acute toxicity :

5-ACETYL-3-ISOPROPYL-1,1,2,6-TETRAMETHYLINDANE
(CAS: 68140-48-7)

Oral route : LD50 = 1680 mg/kg body weight

Dermal route : LD50 = 3400 mg/kg body weight

5-ACETYL-1,1,2,3,3,6-HEXAMETHYLINDAN (CAS: 15323-35-0)

Oral route : LD50 = 500 mg/kg body weight

1-(5,6,7,8-TETRAHYDRO-3,5,5,6,8,8-HEXAMETHYL-2-NAPHTHYL)ETHAN-1-ONE (FIXOLID) (CAS: 1506-02-1)

Oral route : LD50 = 1000 mg/kg body weight

Harmful if swallowed.

b) Skin corrosion/skin irritation :

Repeated or prolonged contact with the substance may cause removal of natural oil from the skin resulting in non-allergic contact dermatitis and absorption through the skin.

c) Serious damage to eyes/eye irritation :

Splashes in the eyes may cause irritation and reversible damage

d) Respiratory or skin sensitisation :

No data available.

e) Germ cell mutagenicity :

No data available.

f) Carcinogenicity :

No data available.

g) Reproductive toxicant :

No data available.

h) Specific target organ systemic toxicity - single exposure :

No data available.

i) Specific target organ systemic toxicity - repeated exposure :

No data available.

j) Aspiration hazard :

No data available.

11.1.2 Complex substance

11.1.2.1 Information on hazard classes

a) Acute toxicity :

Oral route : Harmful if swallowed.

Dermal route : No data available.

Inhalation route (Dusts/mist) : No data available.

b) Skin corrosion/skin irritation :

No data available.

c) Serious damage to eyes/eye irritation :

Splashes in the eyes may cause irritation and reversible damage

d) Respiratory or skin sensitisation :

No data available.

e) Germ cell mutagenicity :

No data available.

f) Carcinogenicity :

No data available.

g) Reproductive toxicant :

No data available.

h) Specific target organ systemic toxicity - single exposure :

No data available.

i) Specific target organ systemic toxicity - repeated exposure :

No data available.

j) Aspiration hazard :

No data available.

11.1.2.2 Other information**Symptoms related to the physical, chemical and toxicological characteristics**

Exposure to vapours from solvents in the mixture in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on kidney, liver and central nervous system.

Symptoms produced will include headaches, numbness, dizziness, fatigue, muscular asthenia and, in extreme cases, loss of consciousness.

11.2. Information on other hazards**SECTION 12 : ECOLOGICAL INFORMATION**

Very toxic to aquatic life with long lasting effects.

The product must not be allowed to run into drains or waterways.

12.1. Toxicity**12.1.2 Complex substance**

No aquatic toxicity data available for the substances.

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects

No data available.

SECTION 13 : DISPOSAL CONSIDERATIONS

The appropriate waste management of the substance and/or its container must be determined in accordance with local regulations.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Soiled packaging :
Empty container completely. Keep label(s) on container.
Give to a certified disposal contractor.

SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2025 - IMDG 2024 [42-24] - ICAO/IATA 2026 [67]).

- 14.1. UN number
3077
- 14.2. UN proper shipping name
UN3077=ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(1-(5,6,7,8-tetrahydro-3,5,5,6,8,8-hexamethyl-2-naphthyl)ethan-1-one (fixolid))
- 14.3. Transport hazard class(es)



- Classification :
9

- 14.4. Packing group
III
- 14.5. Environmental hazards



- Environmentally hazardous material :

14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	9	M7	III	9	90	5 kg	274 335 375 601	E1	3	-
	Not subject to this regulation if Q ≤ 5 1 / 5 kg (ADR 3.3.1 - DS 375)									
IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation	

	9	-	III	5 kg	F-A. S-F	274 335 375 966 967 969	E1	Category A SW23	-	
	Not subject to this regulation if Q ≤ 5 1 / 5 kg (IMDG 3.3.1 - 2.10.2.7)									
IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ	
	9	-	III	956	400 kg	956	400 kg	A97 A158 A179 A197 A215	E1	
	9	-	III	Y956	30 kg G	-	-	A97 A158 A179 A197 A215	E1	
	Not subject to this regulation if Q ≤ 5 1 / 5 kg (IATA 4.4.4 - DS A197)									

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

Marine pollutant (IMDG 3.1.2.9):(1-(5,6,7,8-tetrahydro-3,5,5,6,8,8-hexamethyl-2-naphthyl)ethan-1-one (fixolid))

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No data available.

SECTION 15 : REGULATORY INFORMATION

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

The following regulations have been used:

- Globally Harmonized System of Classification and Labelling of Chemicals (GHS), review no. 8 (2019)

Container information:

No data available.

Particular provisions :

No data available.

Ozone-depleting substances (Regulation (EC) No 2024/590).

The substance does not pose a risk to the ozone layer.

15.2. Chemical safety assessment

No data available.

SECTION 16 : OTHER INFORMATION

Wording of the phrases mentioned in section 3 :

H302	Harmful if swallowed.
H313	May be harmful in contact with skin.
H316	Causes mild skin irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Abbreviations and acronyms :

LD50 : The dose of a test substance resulting in 50% lethality in a given time period.

LQ : Limited Quantity

EQ : Excepted Quantity

EmS : Emergency Schedule

E : Packing Instruction

REACH : Registration, Evaluation, Authorization and Restriction of Chemical Substances.

ADR : Agreement concerning the international carriage of dangerous goods by road.

GHS07 : Exclamation mark

GHS09 : Environment

IATA : International Air Transport Association.

IMDG : International Maritime Dangerous Goods.

ICAO : International Civil Aviation Organisation

PBT: Persistent, bioaccumulable and toxic.

RID : Regulations concerning the International carriage of Dangerous goods by rail.

vPvB : Very persistent, very bioaccumulable.

The information contained in this safety data sheet is based on our current knowledge at the time of publication and is provided in good faith. It does not constitute any guarantee of specific product properties nor establish any contractual relationship. The user remains solely responsible for safe and compliant use of the product in accordance with current regulations.