

SAFETY DATA SHEET

(GHS, Appendix 4)

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

1.1. Product identifier

Product name : Cis-3-Hexenyl Acetate

EC N° : 222-960-1

CAS N° : 3681-71-8

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.

Flammable liquid, Category 3 (Flam. Liq. 3, H226).

Hazardous to the aquatic environment - Acute hazard, Category 3 (Aquatic Acute 3, H402).

2.2. Label elements

GHS compliant.

Hazard pictograms :



GHS02

Signal Word :

WARNING

Hazard statements :

H226 Flammable liquid and vapour.

H402 Harmful to aquatic life.

Precautionary statements - Prevention :

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P273 Avoid release to the environment.

Precautionary statements - Storage :

P403 + P235 Store in a well-ventilated place. Keep cool.

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: 3681-71-8 EC: 222-960-1 CIS-3-HEXEN-1-YL ACETATE	GHS02 Wng Flam. Liq. 3, H226 Aquatic Acute 3, H402		100%
INDEX: 603-025-00-0 CAS: 109-99-9 EC: 203-726-8 TETRAHYDROFURAN	GHS07, GHS08, GHS02 Wng Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H335 Carc. 2, H351	[1] [2]	0 ≤ x % < 1

Information on ingredients :

[1] Substance for which maximum workplace exposure limits are available.

[2] Carcinogenic, mutagenic or reprotoxic (CMR) substance.

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.

In the event of swallowing :

In the event of swallowing, if the quantity is small (no more than one mouthful), rinse the mouth with water 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

Flammable.

Chemical powders, carbon dioxide and other extinguishing gas are suitable for small fires.

5.1. Extinguishing media

Keep packages near the fire cool, to prevent pressurised containers from bursting.

Suitable methods of extinction

In the event of a fire, use :

- sprayed water or water mist

- water with AFFF (Aqueous Film Forming Foam) additive

Prevent the effluent of fire-fighting measures from entering drains or waterways.

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

Fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

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.

If the product contaminates waterways, rivers or drains, alert the relevant authorities in accordance with statutory procedures

Use drums to dispose of collected waste in compliance with current regulations (see section 13).

6.3. Methods and material for containment and cleaning up

Clean preferably with a detergent, do not use solvents.

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.

Remove contaminated clothing and protective equipment before entering eating areas.

Fire prevention :

Handle in well-ventilated areas.

Vapours are heavier than air. They can spread along the ground and form mixtures that are explosive with air.

Prevent the formation of flammable or explosive concentrations in air and avoid vapor concentrations higher than the occupational exposure limits.

Prevent the accumulation of electrostatic charges with connections to earth.

Use the mixture in premises free of naked flames or other sources of ignition and ensure that electrical equipment is suitably protected.

Keep packages tightly closed and away from sources of heat, sparks and naked flames.

Do not use tools which may produce sparks. Do not smoke.

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.

Never open the packages under pressure.

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 all sources of ignition - do not smoke.

Keep well away from all sources of ignition, heat and direct sunlight.

Avoid accumulation of electrostatic charges.

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

Occupational exposure limits :

- European Union (2022/431, 2019/1831, 2017/2398, 2017/164, 2009/161, 2006/15/CE, 2000/39/CE, 98/24/CE) :

CAS	VME-mg/m ³ :	VME-ppm :	VLE-mg/m ³ :	VLE-ppm :	Notes :
109-99-9	150	50	300	100	Peau

- ACGIH TLV (American Conference of Governmental Industrial Hygienists, Threshold Limit Values, 2010) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm	100 ppm		Skin; A3	

- South Africa / DME (Department of Minerals and Energy, 2006) :

- South Africa / DOL RL (Department of Labour, Recommended limits, 1995) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	200 ppm 590 mg/m ³	250 ppm 735 mg/m ³			

- Germany - AGW (BAuA - TRGS 900, 02/2022) :

CAS	VME :	VME :	Excess	Notes
109-99-9		50 ppm	150 mg/m ³	2(I)

- Australia (NOHSC: 3008, 1995) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	100 ppm 295 mg/m ³			A	

- Belgium (Royal decree of 11/05/2021) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m ³	100 ppm 300 mg/m ³		D	

- Brazil :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	156 ppm	-	-	-	-

- Canada / Alberta (Occupational health and safety code, 2009) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 147 mg/m3	100 ppm 295 mg/m3			

- Canada / British Colombia (2009) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm	100 ppm			

- Canada / Quebec (Regulations on occupational health and safety) :

- China (GBZ 2.1, 2007) :

CAS	TWA :	STEL :	Anm :	TWA :	STEL :
109-99-9	300 mg/m3				

- Denmark (2020) :

Stof	TWA	VSTEL	Loftvaerdi	Anm	
109-99-9	50 ppm 150 mg/m3			EH	

- France (INRS - Outils 65 / 2021-1849, 2021-1763, decree of 09/12/2021) :

CAS	VME-ppm :	VME-mg/m3 :	VLE-ppm :	VLE-mg/m3 :	Notes :	TMP No :
109-99-9	50	150	100	300	*	84

- Finland (HTP-värden 2018) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3			

- Spain (Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT), 2019) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		via dermica. VLI. VLB	

- Greece (90/1999) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9		200 ppm 590 mg/m3	250 ppm 735 mg/m3		

- Hong-Kong (Code of practice on control of air impurities (Chemicals substances) in the workplace, 04/2002) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	200 ppm	250 ppm	-	-	-

- Ireland (Code of practice for the Chemical Agents Regulations, 2021) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3			

- Italy (Decree, 26/02/2004) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		Pelle	

- Japan (JSOH, Recommendation of occupational exposure limits 2021-2022) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 148 mg/m3				
- Latvia (Regulation No. 325/2007) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		Ada	
- Lithuania (HN 23 :2001) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		O	
- Luxembourg (RGD 14/11/2016, Memorial A n°247 du 8 mars 2017) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		Peau	
- Malaysia :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	200 ppm	-	-	-	-
- Malta (L.N. 353/2007) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		Skin	
- Mexico :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	200 ppm	250 ppm	-	-	-
- Norway (Veiledning om administrative normer for forurensning i arbeidsatmosfære, 2019) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3			HE	
- New Zealand (Workplace Exposure standards, 11/2020, edition 12-1) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		skin	
- Netherlands / MAC-waarde (10 december 2014) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	100 ppm 300 mg/m3	200 ppm 600 mg/m3		H	
- Poland (Dz. U. z 2018 r. poz. 917, 1000 i 1076) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	150 mg/m3	300 mg/m3		skóra	
- Portugal (1.a N° 26 - 06/01/2012) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		Cutânea	
- Czech Republic (Regulation No. 361/2007) :					

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	150 mg/m3	300 mg/m3		D. I	
- Slovakia (Regulation 300/2007, 471/2011 23/11/2011) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		K	
- Slovenia (Uradni List, 04/06/2015) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9		50 ppm 150 mg/m3		K. BAT. EU*	
- Switzerland (Suva 2021) :					
CAS	VME	VLE	Valeur plafond	Notations	
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3			
- Sweden (AFS 2018 :1) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3			
- Romania (Hotarâre 1218/2006) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3			
- UK / WEL (Workplace exposure limits, EH40/2005, Fourth Edition 2020) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	50 ppm 150 mg/m3	100 ppm 300 mg/m3		Sk	
- USA / NIOSH REL (National Institute for Occupational Safety and Health, Recommended exposure limits) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	200 ppm	250 ppm	-	-	I
- USA / NIOSH IDLH (National Institute for Occupational Safety and Health, Immediately Dangerous to Life or Health Concentrations) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	200 ppm 590 mg/m3	250 ppm 735 mg/m3			
- USA / OSHA PEL (Occupational Safety and Health Administration, Permissible Exposure Limits) :					
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
109-99-9	200 ppm 590 mg/m3				

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 EN166.

- 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 :

- PVA (Polyvinyl alcohol)

- 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.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

No data available.

Physical state

Physical state : Fluid liquid.

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

Flammability (solid, gas) : Not stated.

Lower and upper explosion limit

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

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

Flash point

Flash Point : 60.00 °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 : 0,891-0,911@20°C
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 : 1,422-1,432@20°C
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

Any apparatus likely to produce a flame or to have a metallic surface at high temperature (burners, electric arcs, furnaces etc.) must not be allowed on the premises.

Avoid :

- accumulation of electrostatic charges.
- heating
- heat
- flames and hot surfaces

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

Exposure to vapours from this solvent 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.

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.

Splashes in the eyes may cause irritation and reversible damage

11.1.1. Substances

No toxicological data available for the substances.

11.1.2 Complex substance

No toxicological data available for the substances.

11.2. Information on other hazards

Monograph(s) from the IARC (International Agency for Research on Cancer) :

CAS 108-88-3 : IARC Group 3 : The agent is not classifiable as to its carcinogenicity to humans.

CAS 109-99-9 : IARC Group 2B : The agent is possibly carcinogenic to humans.

SECTION 12 : ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

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 2023 - IMDG 2022 [41-22] - ICAO/IATA 2023 [64]).

14.1. UN number

3272

14.2. UN proper shipping name

UN3272=ESTERS, N.O.S.

(tetrahydrofuran)

14.3. Transport hazard class(es)



- Classification :

3

14.4. Packing group

III

14.5. Environmental hazards

-

14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	3	F1	III	3	30	5 L	274 601	E1	3	D/E
IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation	

	3	-	III	5 L	F-E. S-D	223 274	E1	Category A		
IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ	
	3	-	III	355	60 L	366	220 L	A3	E1	
	3	-	III	Y344	10 L	-	-	A3	E1	

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.

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.

15.2. Chemical safety assessment

No data available.

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the substance and not as a guarantee of the properties thereof.

Wording of the phrases mentioned in section 3 :

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer .
H402	Harmful to aquatic life.

Abbreviations and acronyms :

CMR: Carcinogenic, mutagenic or reprotoxic.

STEL : Short-term exposure limit

TWA : Time Weighted Averages

TMP : French Occupational Illness table

TLV : Threshold Limit Value (exposure)

AEV : Average Exposure Value.

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

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

GHS02 : Flame

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.