



2,3,5,6-Tetrachloropyridine (Symtet)

Safety Data Sheet

According to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

Date of compilation : April 06, 2012
Chemical : 2,3,5,6-Tetrachloropyridine
File Name : 0441Bh Ghs22 Div.5 sds 2,3,5,6-Tetrachloropyridine(Symtet)
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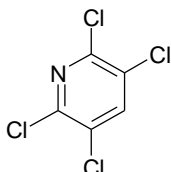
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Identification

PRODUCT NAME	2,3,5,6-Tetrachloropyridine
TRADE NAME	Symtet
CAS RN	2402-79-1
EC#	219-283-9
SYNONYMS	Pyridine, 2,3,5,6-tetrachloro-, Tetrachloropyridine, 2,3,5,6-
SYSTEMATIC NAME	2,3,5,6-Tetrachloropyridine, Pyridine, 2,3,5,6-tetrachloro-
MOLECULAR FORMULA	C ₅ HCl ₄ N
STRUCTURAL FORMULA	



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

1.2.1. Relevant identified uses

2,3,5,6-Tetrachloropyridine is used as an intermediate in the production of various herbicides, fungicides and insecticides like chlorpyrifos and trichlopyri.

Uses advised against: None

1.3. Details of the supplier of the safety data sheet

Jubilant Ingrevia Limited

FACTORY ADDRESS: Jubilant Ingrevia Limited (Unit-2), Plot No:-P1-L13 To L16, Within Jubilant sector specific SEZ for chemicals at Plot No:5, Vilayat GIDC, Taluka-Vagra, Distt: Bharuch, Gujarat, 392012 India, Tel.: +91-2641-281500, 281507, Fax.: +91-2641-281515

HEAD OFFICE: Jubilant Ingrevia Limited Plot 1-A, Sector 16-A, Institutional Area, Noida, Uttar Pradesh, 201301 – India
T +91-120-4361000 - F +91-120-4234881 / 84 / 85 / 87 / 95 / 96 support@jubl.com - www.jubilantingrevia.com

1.4. Emergency telephone number

For Chemical Emergency (in the case of fire, leak, spill, exposure or accident) Call

Chemtrec: 1-800-424-9300 (US), 1-703-527-3887 (Outside U.S.)

Chemtrec (India) : 000-800-100-7141

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity oral: Category 4

Hazardous to the aquatic environment: Category 2
(CHRONIC HAZARD)

Hazard Pictogram: GHS 07, GHS 09

Signal Word: *Warning!*



HAZARD AND PRECAUTIONARY STATEMENTS:

HAZARD STATEMENTS

- H302: Harmful if swallowed.
- H411: Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

- P264: Wash hands thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P273: Avoid release to the environment.



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- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
- P330: Rinse mouth.
- P391: Collect spillage.
- P405: Store locked up
- P501: Dispose of contents/container to local/regional/national/international regulations.

SECTION 3: Composition/information on ingredients

Chemical	CAS #	Purity	GHS-US classification
2,3,5,6-Tetrachloropyridine	2402-79-1	>99%	Acute toxicity oral: Category 4 Hazardous to the aquatic environment: Category 2 (CHRONIC HAZARD)

SECTION 4: First aid measures

Description of first aid measures

Key symptoms

- It is harmful if swallowed. It causes slight to moderate dermal irritation and slight conjunctival irritation that can be cured in 24 hours.

Chronic effects:

- To the best of our knowledge delayed effects of this compound have not been fully investigated.

FIRST AID:

- **Eyes:** If in eyes rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do so. Continue rinsing. Seek medical attention.
- **Skin:** Immediately take off all contaminated clothing. Wash thoroughly with water for at least 15 minutes. Wash contaminated clothes before reuse. Seek immediate medical attention.
- **Inhalation:** Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if you feel unwell.
- **Ingestion:** If swallowed call a poison center if you feel unwell. Rinse mouth. Do NOT induce vomiting by use of emetics. Seek medical attention.

SECTION 5 : FIRE-FIGHTING MEASURES

Extinguishing media

- *Appropriate extinguishing media:* Dry chemical powder, carbon dioxide, and alcohol resistant foam. Water may also be used. Water sprays can be effective in cooling down the fire-exposed containers and knocking down the vapors. Water jets may be used to flush spills away and dilute the same to non-flammable mixtures.

Special Protective Equipment and Precautions for Fire Fighter

- Evacuate the area and fight fires from a safe distance.
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions or as per locally valid procedures.
- Fire fighters must wear Self Contained Breathing Apparatus (SCBA) and full protective clothing. The chemical is harmful in contact with skin.
- Report any run-off of fire waters contaminated with this chemical as per local and federal procedures applicable.

Unusual fire and explosion hazard

- Toxic vapors may be released on thermal decomposition including nitrogen oxides, carbon monoxide and cyanide.
- High vapor concentration may result in an explosion hazard.
- Vapors are heavier than air. May travel considerable distance from source and flashback.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Minor Spills

- Clean up all spills immediately following relevant Standard Operating Procedures.
- Avoid breathing vapors and contact with skin and eyes.
- Shut off leak source if possible.
- Shut off all possible sources of ignition.
- Wear protective clothing, boots, impervious gloves and safety glasses.
- Wipe up.
- Decontaminate all equipment.



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Major Spill

- Alert Emergency Responders and tell them location and nature of hazard.
- Shut off all possible sources of ignition and increase ventilation.
- Wear protective clothing, full boots, impervious gloves, safety glasses and Self Contained Breathing Apparatus (SCBA), as may be deemed appropriate.
- Clear area of personnel and move upwind.
- Stop leaks if possible.
- Prevent, by any means available, spillage from entering drains or water and watercourses.
- Collect recoverable product into labeled containers for recycling, recovery or disposal.
- Contain spill with sand, earth or vermiculite.
- Spread area with lime or absorbent material, and leave for at least 1 hour before washing.

- Clean up all tools and equipment.
- Inform authorities in event of contamination of any public sewers, drains or water bodies.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

- Do not breathe vapor or mist.
- Wear protective gloves/clothing and eye/face protection.
- Wash thoroughly after handling.
- Ground and secure containers when dispensing or pouring product.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Launder contaminated clothing before re-use.
- If on skin or hair, IMMEDIATELY remove all contaminated clothing and rinse/shower with plenty of water.
- Use in a well ventilated place/Use protective clothing commensurate with exposure levels.
- Use non-sparking tools.

Storage

- Store at ambient temperature in a dry and well ventilated place.
- Store in a flame proof area.
- Store away from incompatible materials.
- Keep only in original container.
- Keep securely closed when not in use.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits Values

Chemical name	ACGIH TLV	TWA	OSHA PEL
2,3,5,6-Tetrachloropyridine	Not established	2 mg/m ³ or (0.223 ppm)	Not established

Exposure Limits (International):

- Not available.

Exposure Controls

Appropriate Engineering Controls:

- Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. Local ventilation is usually preferred. Ensure that eyewash stations and safety showers are close to the workstation location.

Other Engineering Controls:

- All appropriate engineering control should be used to minimize exposure potential.

Personal Protection:

- Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.
- **Hands:** Wear appropriate protective gloves to prevent skin exposure.



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- **Eyes:** Safety goggles/ Chemical Safety glasses and Face shield.
- **Clothing:** Boots and clothing to prevent contact.
- **Respirator:** A NIOSH approved air-purifying respirator with an appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited to airborne concentrations that are typically within 10 times the exposure limit. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure limits are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator use.

General Hygiene and general comments:

- Wash hands and face after working with substance.
- Immediately change contaminated clothing.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties.

Sr.No.	Parameter	Typical value
1.	Appearance	White to light yellow solid
2.	Odor	Not available
3.	Odor Threshold	Not available
4.	Melting point	90-92°C
5.	Boiling point	250-252°C
6.	Flash point	188°C
7.	Evaporation rate (n-BuAc=1)	Not available
8.	Explosive limits	Not available
9.	Vapor pressure	6.06E-03 mm Hg @ 25°C
10.	Vapor density (air=1)	Not available
11.	Specific gravity (water=1)	Not available
12.	Solubility	1.3mg/l @ 25°C
13.	pH	Not available
14.	Log Pow (octanol/water)	3.627
15.	Auto-ignition temperature	Not available
16.	Decomposition temperature	Not available
17.	Viscosity	Not available
18.	Molecular Weight	216.88
19.	pKa (@25°C)	-0.8
20.	Koc	Not available
21.	Oxidizer	No
22.	Corrosive material	No
23.	Explosive material	No



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SECTION 10: STABILITY AND REACTIVITY

- **Stability:** Stable under normal temperature and pressure.
- **Conditions to avoid:** Avoid high temperatures, welding arcs, open flames that may induce thermal decomposition.
- **Incompatible chemicals:** Oxidizing agents and strong reducing agents.
- **Hazardous decomposition:** Carbon monoxide, Hydrogen Cyanide, oxides of nitrogen and Hydrogen Chloride.
- **Hazardous Polymerization:** Not reported.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

a) Acute toxicity

- It is harmful if swallowed. It causes slight to moderate dermal irritation and slight conjunctival irritation that can be cured in 24 hours.

RTECS#: UT8225000

LD50/LC50: Oral LD50 (Rat): 1182 to 1414 mg/Kg bw

b) Skin corrosion/irritation

- Causes skin irritation.

c) Serious eye damage/irritation

- Causes eye irritation.

d) Respiratory or skin sensitization

- No data available

e) Germ cell mutagenicity

- No remarkable effects were observed for mutagenicity (Ames assay for mutations, in vivo mouse micronucleus test for chromosomal aberrations)
- Negative in bacterial reverse mutation assay (S. typhimurium TA98, TA100, TA1535, TA1537)
- Negative in mouse micronucleus assay.

f) Carcinogenicity

- Not listed by NTP, IARC and OSHA.
- Not present on the EU CMR list.
- According to information presently available 2,3,5,6-Tetra chloropyridine is not found to be carcinogenic.

g) Reproductive toxicity

- No effects on offspring even at maternally toxic levels (rat, developmental/reproductive toxicity screen, IP injection)

h) STOT-single exposure

- No data is available.

i) STOT-repeated exposure

Repeated Dose Toxicity:

- Kidney effects in males (rat, 91-day, diet, NOAEL=100 mg/kg/day) – hyaline droplet formation.

j) Aspiration Hazards

- No data available.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity:

- Fish 96-hr LC50 = 1.5 mg/l (Oncorhynchus mykiss)
 - Daphnid 48-hr LC50 = 2.05-2.14 mg/l
 - Green Algae 120 hr = 8.8-14.1 (Selenastrum. Capricornutum)
- Based on the estimated values it is expected that 2,3,5,6-Tetrachloropyridine is toxic to aquatic organisms.

Persistence and degradability

- Under anaerobic conditions, this compound is expected to be persistent.
- 2,3,5,6-Tetrachloropyridine may be susceptible to anaerobic biodegradation via dehalogenation.

Bioaccumulative potential

- According to a classification scheme, and estimated BCF of 70, from its log Kow 3.32 suggests the potential for bioconcentration in aquatic organisms is moderate.

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- 2,3,5,6-Tetrachloropyridine is expected to be resistant to biodegradation under aerobic conditions in water based on soil data from structurally-similar compounds. This compound may be susceptible to anaerobic biodegradation via dehalogenation.

Mobility in soil

- Koc = 1500 (Estimated) (It is expected to have low mobility in soil)
- Log Kow = 3.32 (estimated). (Low potential to bioaccumulate).
- Henry's Law constant=8.5X10⁻³ atm-cu m/mole (Environmental release of 2,3,5,6-tetrachloropyridine is low)
- Based on a classification scheme, an estimated Koc value of 1500,determined from a log Kow of 3.32 and a regression-derived equation, indicates that 2,3,5,6-tetrachloropyridine is expected to have low mobility in soil.Volatilization of 2,3,5,6-tetrachloropyridine from moist soil surfaces may be an important fate processgiven an estimated Henry's Law constant of 8.5X10⁻³ atm-cu m/mole.2,3,5,6- Tetrachloropyridine is not expected to volatilize from dry soil surfaces based upon an estimated vapor pressure of 6.1X10⁻³ mm Hg, determined from a fragment constant method.

Other adverse effects

- Environment Fate:**
- Based on the environmental modeling, this material has a low potential to get absorbed in the organic matter of soil and is slightly volatile from water bodies. Since this is an estimated result it is recommended that the material should not be disposed into the environment. The material should never be disposed into the sewage.


SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

- Burn in a chemical incinerator equipped with an afterburner and scrubber.
- Dispose of this material in accordance with standard practice for disposal of potentially hazardous materials as required by applicable federal, state or local laws. Note that disposal regulations may also apply to empty containers and equipment reinstates.

SECTION 14: Transport information

- This substance is considered to be Hazardous for transport by Air/Rail/Road and Sea and thus regulated by IATA/ICAO/ARD/RID/IMO/IMDG.

S.No	Agency	UN Number	Proper Shipping name	Hazard Class	Packing Group
Land Transport	ADR/RIC	UN 3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCES,SOLID,N.O.S.(2,3,5,6-Tetrachloropyridine)	9	III
Maritime Transport	IMDG	UN 3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCES,SOLID,N.O.S.(2,3,5,6-Tetrachloropyridine)	9	III
Air Transport	IATA	UN 3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCES,SOLID,N.O.S.(2,3,5,6-Tetrachloropyridine)	9	III
Hazard Label		Marine Pollutant			

Environmental hazards

- Marine Pollutant: Yes

SECTION 15: REGULATORY INFORMATION

European Union Information

Classification as per CLP Regulation 1272/2008:

- Hazards Class and Category:** Acute Tox. oral Cat 4, Aqatic Chronic Cat 2
- Hazard Statements:** H302, H411



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Chemical Inventory Lists	Status
TSCA:	Listed (Active)
EINECS:	2402-79-1
Canada(DSL/NDSL):	Listed/NDSL
Japan:	Listed
Korea:	Not listed
Australia:	Not listed
China: IECSC	Not listed

US information

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): 2,3,5,6-Tetrachloropyridine is not listed

SARA 302/304 : 2,3,5,6-Tetrachloropyridine is not listed

SARA 311/312 : See section 2 for more information

California Prop. 65: 2,3,5,6-Tetrachloropyridine is not listed

CAA (Clean Air Act): 2,3,5,6-Tetrachloropyridine is not listed

CWA (Clean Water Act): 2,3,5,6-Tetrachloropyridine is not listed

EU Information

Water hazard class (WGK): WGK 3 (Severely hazardous to water)

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006: 2,3,5,6-Tetrachloropyridine is not listed

SECTION 16: OTHER INFORMATION

a) Compilation information of safety data sheet

Date of compilation : April 06, 2012
Chemical : 2,3,5,6-Tetrachloropyridine
CAS # :2402-79-1
File Name : 0441Bh Ghs22 Div.5 sds 2,3,5,6-Tetrachloropyridine(Symtet)
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b) A key or legend to aberrations and acronyms used in the safety data sheet

- PBT =Persistent Bioaccumulative and Toxic.
- vPvB= Very Persistent and Very Bioaccumulative.
- SCBA= Self Contained Breathing Apparatus.
- NIOSH REL= National Institute for Occupational Safety and Health Recommended Exposure Limit. OSHA PEL=Occupational Safety and Health Administration Permissible Exposure Limit.
- OELTWA= Occupational Exposure Limit Time Weighted Averages.
- IDLH= Immediately Dangerous to Life or Health.
- UEL= Upper Explosive Limit.
- LEL= Lower Explosive Limit.
- RTECS= Registry of Toxic Effects of Chemical Substances.
- NTP=National Toxicology Program.
- IARC= International Agency for Research on Cancer.
- EPA=Environmental Protection Agency.
- TSCA= Toxic Substances Control Act.
- CERCLA= Comprehensive Environmental Response, Compensation, and Liability Act.
- SARA= Superfund Amendments and Reauthorization Act.
- NFPA= National Fire Protection Association.
- WHIMS= Workplace Hazardous Materials Information System.
- DSL/NDSL= Domestic/Non-Domestic Substances List.
- CSR=Chemical Safety Report.
- BCF = Bio Concentration Factor.
- DNEL = Derived No Effect Level.



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- PNEC = Predicted No Effect Concentration.
- TLV = Threshold Limit Value.
- ACGIH = American Conference of Governmental Industrial Hygienists.
- REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals.
- CLP = Classification, Labelling and Packaging.
- LD / LC = Lethal Doses / Lethal Concentration.
- GHS = Globally Harmonised System.
- ADR = Accord européen relative au transport international de marchandises.
- IMDG-Code = International Maritime Code for Dangerous Goods.
- EmS = Emergency measures on Sea.
- ICAO = International Civil Aviation Organization.
- IATA/DGR= International Air Transport Association/Dangerous Goods Regulation.

c) Key Literature reference and sources for data

Biographical reference and data sources

- CLP REG (regulation) (EC) no. 1272/2008, last modification by regulation (EC) no. 790/2009
- DIR 67/548/EWG, last modification by DIR 2009/2/EC
- REG (EC) no. 1907/2006, last modification by REG (EC) Nr. 453/2009.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

(End of Safety Data Sheet)