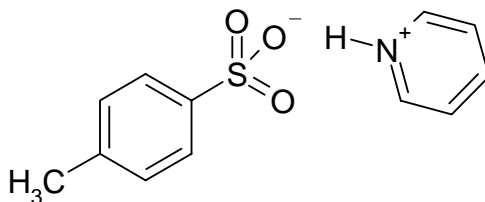


SAFETY DATA SHEET**Section 1: IDENTIFICATION**

PRODUCT NAME Pyridinium p-toluenesulfonate
CAS RN 24057-28-1
EC# 246-002-7
OTHER LANGUAGES
De: Pyridinium p-toluolsulfonat
Es: Pyridinium p-Toluenosulfonato
Fr: Pyridinium p-Toluènesulfonate

SYSTEMATIC NAME Pyridinium p-toluenesulfonate

MOLECULAR FORMULA C₁₂H₁₃NO₃S
STRUCTURAL FORMULA

**INGREDIENTS**

Chemical	CAS	Purity	Unit
Pyridinium p-toluenesulfonate	24057-28-1	>98 %	w/w

PRODUCT USES

Pyridinium p-toluenesulfonate is used as an intermediate in the synthesis of Tacrolimus drug used for immunosuppressive activity and Orlistat drug used to treat obesity.

FACTORY & REGISTERED OFFICE:

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Medical and Transport Emergencies
Logistics Emergencies:

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Section 2: HAZARD IDENTIFICATION

GHS CLASSIFICATION

Eye irritation: Category 2B
Skin Corrosion/irritation: Category 2

**OVERVIEW**

It is white to off white crystalline hygroscopic solid, soluble in water, methanol and ethanol.

Warning!
Irritating to skin, eyes and respiratory system

PRECAUTIONARY STATEMENTS**Prevention**

- Wear protective gloves/clothing and eye/face protection.
- Wash thoroughly after handling.
- Wash hands thoroughly after handling.

RESPONSE

If On Skin (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before use. Immediately call a doctor or poison center in all incidents.

If In Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion: Rinse mouth. If swallowed do NOT induce vomiting. Call a POISON CENTRE or doctor/Physician if you feel unwell.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if you feel unwell.

Absorb spillage to prevent material damage.
Do not use water to extinguish. Use water fog (spray), foam, Dry Chemical Powder or carbon dioxide.

Storage

Store locked up
Store in a corrosive resistant container.

Disposal

Dispose of the container as per local norms and regulations.

Section 3: Composition of ingredients

Sr.No.	Chemical	CAS #	EC#	Purity
1	Pyridinium p-toluenesulfonate	24057-28-1	246-002-7	> 98 %

Section 4: First Aid Measures**Key symptoms**

- It is irritating to skin, eyes and respiratory system.

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

Flash Point: Not available

Non Flammable Material

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.

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.
- Wear protective clothing, boots, impervious gloves and safety glasses.
- Wipe up.
- Decontaminate all equipment.

Major Spill

- Alert Emergency Responders and tell them location and nature of hazard.
- 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 & Storage**Handling**

- Wear protective gloves/clothing and eye/face protection.
- Wash thoroughly after handling.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- If on skin or hair, IMMEDIATELY remove all contaminated clothing and rinse/shower with plenty of water.

Storage

- Store in a cool, well ventilated place
- Keep only in original container.

Section 8: Exposure Controls/Personal protection

Exposure Limits

Chemical name	STEL (ppm)	NIOSH	ACGIH	OSHA
Pyridinium p-toluenesulfonate	None available	None available	None available	None available

Exposure 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.

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.

Eyes: Safety goggles/ Chemical Safety glasses and Face shield.

Clothing: Boots and clothing to prevent contact.

Respirator: Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

General Hygiene and general comments:

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

Section 9: Physical and Chemical Properties
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Sr.No.	Parameter	Typical value
1	Appearance	White to off white crystalline
2	Odor	Not available
3	Odor Threshold	Not available
4	pH (5 % Aq. Solution)	1.5-2.5
5	Melting point	117-119 °C
6	Boiling point	Not available
7	Flash point	Not available
8	Evaporation rate (n-BuAc=1)	Not available
9	Explosive limits	Not available
10	Vapor pressure	Not available
11	Relative Vapor density (air=1)	Not available
12	Specific gravity	Not available
13	Solubility	Soluble in water, methanol and ethanol.
14	Log Kow (octanol/water)	0.65
15	Auto-ignition temperature	Not available
16	Decomposition temperature	Not available
17	Viscosity	Not available
18	Molecular Weight	251.3
19	PKa (@25°C)	Not available
20	Log Koc	1.519
21	Flammable material	No
22	Oxidizer	No
23	Corrosive material	No
24	Explosive material	No

Section 10: Stability and Reactivity

Stability: Stable at normal conditions of temperature and pressure. It decomposes on exposure to moist air or water.

Conditions to avoid: Store in tightly closed containers, cool, dry, moisture conditions.

Incompatible chemicals: Strong oxidizing agents, moisture,

Hazardous decomposition: Thermal decomposition may produce nitrogen oxides, Carbon monoxide, sulphur oxides, nitrogen, irritating and toxic fumes and gases.

Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information**a) Acute Toxicity:**

- **RTECS#:** Unlisted
- **LD50/LC50:** Not available

b) Skin Corrosion/irritation

- Causes skin irritation

c) Serious eye damage/irritation:

- Causes eye irritation

d) Respiratory or skin sensitization:

- Causes irritation to respiratory system

e) Germ cell mutagenicity:

- No data is available

f) Carcinogenicity:

- Not listed by NTP, IARC.
- According to the information presently available Pyridinium p-toluenesulfonate has not been tested for its ability to cause cancer in animals.

g) Reproductive Toxicity:

- According to the information presently available Pyridinium p-toluenesulfonate has not been tested for its ability to affect reproduction.

Section 12: Ecological Information**(a) Ecotoxicity:**

- The Ecotoxicity data is not available.
- Fish ChV (mg/l) : 84 (expected)

Based on the estimated value it is expected to be non-toxic to aquatic organisms.

(b) Persistence and Degradability

- It is expected to be biodegradable in aerobic and anaerobic conditions.

(c) Bioaccumulative Potential (Predicted)

- BCF = 3.2
- Log Kow = 0.65

Based on the Log Kow and Bioconcentration factor value it is expected to have low potential to concentrate in fatty tissue of fish and aquatic organisms.

(d) Mobility (Predicted):

- Log K_{oc}= 1.519 (estimated). Low sorption.
- Henry's Law Constant = 1.1×10^{-05} atm/m³ mole at 25 degrees. It is slightly volatile from aqueous bodies.
- Log K_{ow}= 0.65 (estimated). Low potential to bioaccumulate.

(e) 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 Consideration

- 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 rinsates.

Section 14: Transport Information

This substance is considered to be non hazardous for transport by Air/Rail/Road and Sea and not regulated by IMO/ IMDG/ IATA/ ICAO.

Section 15: Regulatory Information**European information**

EC# 246-002-7

Classification: Xi; R36/37/38

Xi Irritant

RISK PHRASES

- R36/37/38 Irritating to eyes, respiratory system and skin.

SAFETY PHRASES

- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S36 Wear suitable protective clothing.
- S37 Wear suitable gloves.

US FEDERAL

TSCA

CAS# 24057-28-1 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA**Section 302 (RQ)**

None of the chemicals in this material have an RQ.

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any

Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 24057-28-1 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are listed.

CANADA

CAS# 24057-28-1 The substance is specified on the public Portion of the Domestic Substances List .

Section 16: Other Information**SDS data****Chemical:** Pyridinium p-toluenesulfonate**CAS #:** 24057-28-1**File Name:** 0042A01 Div.03 sds Pyridinium p-toluenesulfonate**Date:** January 08, 2009**Revision Number:** 01

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