

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

1.1. Product identifier

Product form : Substance
 Name : PTSC
 EC-No. : 202-684-8
 CAS-No. : 98-59-9
 Synonyms : p-Toluenesulfonyl chloride

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

1.2.1. Relevant identified uses

Use of the substance/mixture : ES3 - Industrial use of Tosyl chloride in synthesis, ES3a - Tosyl chloride, use as intermediate, ES3b - Tosyl chloride, use as reactive processing aid
 See annex for more detailed information

1.2.2. Uses advised against

Restrictions on use : No information available

1.3. Details of the supplier of the safety data sheet

Supplier

Axcentive SARL
 Chemin de Champouse
 13320 Bouc Bel Air - France
 T +33 442 694 090 - F +33 442 694 099
info@axcentive.com

Supplier

Axcentive Asia Pte Ltd
 13 Lorong 8 Toa Payoh
 #07-01 Braddell Tech Park
 319261 Singapore
 T +65 6258 6338 - F +65 6258 6901
info@axcentive.com

1.4. Emergency telephone number

Emergency number : GLOBAL INCIDENT RESPONSE HOTLINE (ACCESS CODE: 333881): Europe: +44-2035147487, North-America: 1.866.519.4752, South-America: 1.760.476.3961, Asia Pacific: +86-4001203572, Middle East/Africa: 1-760-476-3959, Australia: +61-280363166, New Zealand: +64 800 451719

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
United Kingdom	National Health Service (NHS)		111 999 (in life-threatening emergencies)	
Wales	National Health Service (NHS)		0845 46 47	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Corrosive to metals, Category 1 H290
 Skin corrosion/irritation, Category 2 H315
 Serious eye damage/eye irritation, Category 1 H318
 Skin sensitisation, Category 1 H317

Full text of H- and EUH-statements: see section 16

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Adverse physicochemical, human health and environmental effects

Causes skin irritation. May be corrosive to metals. Causes serious eye damage. May cause an allergic skin reaction.

2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazard statements (CLP)

: H290 - May be corrosive to metals.

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H318 - Causes serious eye damage.

Precautionary statements (CLP)

: P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear protective gloves, protective clothing/eye protection/face protection.

P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a POISON CENTER.

P390 - Absorb spillage to prevent material damage.

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

Other information

: UFI: Not required, Nano material: Not required.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Conc. (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
p-Toluenesulfonyl chloride	(CAS-No.) 98-59-9 (EC-No.) 202-684-8 (REACH-no) 01-2119971273-36	100	Met. Corr. 1, H290 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1A, H317

Full text of H- and EUH-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

: When symptoms persist or in all cases of doubt seek medical advice.

First-aid measures after inhalation

: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. Get medical advice/attention.

First-aid measures after skin contact

: Wash skin with plenty of water and soap. Remove contaminated clothing and shoes. Get medical advice/attention.

First-aid measures after eye contact

: Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Get immediate medical advice/attention.

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First-aid measures after ingestion : Rinse mouth. Drink plenty of water. Get medical attention immediately if symptoms occur.

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

Symptoms/effects after skin contact : Redness. Itching. May cause an allergic skin reaction.
Symptoms/effects after eye contact : Burning sensation. Redness.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide (CO₂).
Unsuitable extinguishing media : Water. Formation of: Hydrochloric acid.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Under fire conditions, hazardous fumes will be present: Hydrochloric acid, Chlorinated hydrocarbons.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment. Remove contaminated clothing and shoes. Refer to section 8.2.
Emergency procedures : Evacuate unnecessary personnel. Ventilate spillage area. Do not breathe dust. Avoid contact with skin and eyes. Remove all sources of ignition.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Stop leak if safe to do so.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Avoid dust formation. Shovel or sweep up and put in a closed container for disposal. After cleaning, flush traces away with water.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

See sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Handle in accordance with good industrial hygiene and safety practice. Use only outdoors or in a well-ventilated area. Avoid dust formation. Avoid contact with skin, eyes and clothing. Do not breathe dust. Wear personal protective equipment.

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Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in original container. Keep container tightly closed in a cool, well-ventilated place. Protect from moisture. Keep away from: Water, alkaline. Corrosive to metals.

Incompatible materials : Water. Alkalines. Metals.

Heat and ignition sources : Keep away from open flames, hot surfaces and sources of ignition.

7.3. Specific end use(s)

See annex for more detailed information.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

p-Toluenesulfonyl chloride (98-59-9)	
Ireland - Occupational Exposure Limits	
Local name	p-Toluenesulphonyl chloride
OEL (15 min ref) (mg/m ³)	5 mg/m ³
Regulatory reference	Chemical Agents Code of Practice 2020
United Kingdom - Occupational Exposure Limits	
Local name	p-Toluenesulphonyl chloride
WEL STEL (mg/m ³)	5 mg/m ³
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

Monitoring methods	
Monitoring methods	Refer to European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) or equivalent national standard(s). Refer to European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) or equivalent national standard(s). Refer to European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) or equivalent national standard(s).

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

p-Toluenesulfonyl chloride (98-59-9)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	0.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3.5 mg/m ³
PNEC (Water)	
PNEC aqua (freshwater)	0.1 mg/l
PNEC aqua (marine water)	0.01 mg/l
PNEC aqua (intermittent, freshwater)	1 mg/l

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PNEC (STP)

PNEC sewage treatment plant	17.3 mg/l
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8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Do not breathe dust. Ensure adequate ventilation, especially in confined areas. See annex for more detailed information.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Wear eye protection

Type	Use	Characteristics	Standard
Safety glasses with side shields	Dust		EN 166

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Type	Standard
Long sleeved protective clothing, chemical resistant	EN ISO 13982

Hand protection:

Wear protective gloves. Wear gloves according to the standard plant procedures for personal protection equipment. Ensure all national/local regulations are observed

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Protective gloves	Butyl rubber	6 (> 480 minutes)	0.5		EN 374
Protective gloves	Fluoroelastomer (FKM)		0.4		

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Device	Filter type	Condition	Standard
Dust mask, Half-face mask	Type A/P2	Measures in case of dust release	EN 140, EN 149

8.2.2.4. Thermal hazards

No additional information available

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8.2.3. Other exposure controls

Environmental exposure controls:

Avoid release to the environment. Do not allow into drains or water courses.

Other information:

Workers must be trained in the proper use and handling of this product as required under applicable regulations. Handle in accordance with good industrial hygiene and safety practice. Wash contaminated clothing before reuse.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: White, Grey
Appearance	: Crystalline powder
Odour	: Characteristic
Odour threshold	: Not available
Melting point	: 68.1 °C
Freezing point	: Not applicable
Boiling point	: Decomposes
Flammability	: Non flammable.
Explosive properties	: Not explosive
Explosive limits	: Not applicable
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: 160 °C
pH	: Hydrolysis
Viscosity, kinematic	: Not applicable
Solubility	: Insoluble in water Water: Decomposes
Partition coefficient n-octanol/water (Log Kow)	: Hydrolysis
Vapour pressure	: 0.13 Pa (@20 °C)
Density	: 1492 kg/m ³ (@20 °C)
Relative density	: 1.492 (@20 °C)
Relative vapour density at 20°C	: Not applicable
Particle size	: Not available
Particle size distribution	: Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Oxidising properties : Non oxidizing (UN Test O.1)

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

May react violently with: water, alkalines. Corrosive to metals.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use. Not oxidising.

10.4. Conditions to avoid

Keep away from heat, sparks and flames.

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10.5. Incompatible materials

Water. Alkalines. Metals.

10.6. Hazardous decomposition products

Hydrochloric acid. Chlorinated hydrocarbons.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

p-Toluenesulfonyl chloride (98-59-9)

LD50 oral rat	4680 mg/kg bodyweight (OECD 401 method)
LD50 dermal rabbit	> 5010 mg/kg
Skin corrosion/irritation	: Causes skin irritation. pH: Hydrolysis
Serious eye damage/irritation	: Causes serious eye damage. pH: Hydrolysis
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Additional information	: (OECD 429 method)
Germ cell mutagenicity	: Not known to cause heritable genetic damage
Additional information	: (OECD 474 method): Negative
Carcinogenicity	: Contains no ingredient listed as a carcinogen
Reproductive toxicity	: Not known to cause birth defects or have a deleterious effect on a developing fetus. Not known to adversely affect reproductive functions and organs

p-Toluenesulfonyl chloride (98-59-9)

NOAEL (animal/male, F1)	750 mg/kg bodyweight (OECD 422 method)
NOAEL (animal/female, F1)	750 mg/kg bodyweight (OECD 422 method)
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

p-Toluenesulfonyl chloride (98-59-9)

NOAEL, Subacute, oral, rat	<150 mg/kg bw/day ((OECD 422 method))
Aspiration hazard	: Not classified

PTSC (98-59-9)

Viscosity, kinematic	Not applicable
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11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : Contains no substances identified as having endocrine disrupting properties

11.2.2 Other information

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

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Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

p-Toluenesulfonyl chloride (98-59-9)	
LC50 fish 1	> 100 mg/l (OECD 203 method)
EC50 Daphnia 1	> 334 mg/l (OECD 202 method)
ErC50 (algae)	> 100 mg/l

12.2. Persistence and degradability

PTSC (98-59-9)	
Persistence and degradability	Readily biodegradable.
Biodegradation	60 % (OECD 301D method)

12.3. Bioaccumulative potential

PTSC (98-59-9)	
Partition coefficient n-octanol/water (Log Kow)	Hydrolysis
Bioaccumulative potential	Bioaccumulation unlikely.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

PTSC (98-59-9)	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties : Contains no substances identified as having endocrine disrupting properties

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Neutralize with: Water. Dispose of contents/container to an industrial incineration plant.
Product/Packaging disposal recommendations : Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3261	UN 3261	UN 3261	UN 3261	UN 3261

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14.2. UN proper shipping name				
CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (p-Toluenesulfonyl chloride)	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (p-Toluenesulfonyl chloride)			
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)

: C4

Orange plates

:



Tunnel restriction code (ADR)

: E

EAC code

: 2X

Transport by sea

EmS-No. (Fire)

: F-A

EmS-No. (Spillage)

: S-B

Air transport

Transport regulations (IATA)

: No additional information available

Inland waterway transport

Transport regulations (ADN)

: No additional information available

Rail transport

Transport regulations (RID)

: No additional information available

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Not listed on REACH Annex XVII

Not listed on the REACH Candidate List

Not listed on REACH Annex XIV (Authorisation List)

Not listed on the PIC list (Regulation EU 649/2012)

Not listed on the POP list (Regulation EU 2019/1021)

Other information, restriction and prohibition regulations

: Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.

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15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:

Printed by ExESS software. Full Layout. First aid measures. Label elements. Personal protection equipment. SDS EU format according to COMMISSION REGULATION (EU) 2020/878.

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
DNEL	Derived-No Effect Level
EC50	Median effective concentration
IMDG	International Maritime Dangerous Goods
IATA	International Air Transport Association
LC50	Median lethal concentration
LD50	Median lethal dose
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
STEL	Short-term exposure limit
vPvB	Very Persistent and Very Bioaccumulative

Full text of H- and EUH-statements:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
H290	May be corrosive to metals.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
Met. Corr. 1	Corrosive to metals, Category 1
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1A	Skin sensitisation, category 1A

Safety Data Sheet applicable for regions : IE - Ireland;GB - United Kingdom

SDS EU (REACH Annex II) - RHDHV

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.