

Safety Data Sheet

FLAME RETARDANT TCPP

Version 2.0

According to Regulation (EC) No 1907/2006, Annex II,

Issue Date: 31-08-2022

Amended by COMMISSION REGULATION (EU) 2020/878,

SDS Number: WS-FR-RF-EU-0001

According to REGULATION (EC) No 1272/2008

I Identification of the substance/mixture and of the company/undertaking

I.1 Product identifier:

Identification on the
label/Trade name: FLAME RETARDANT TCPP

Additional identification: Nanoform is NOT covered by this SDS.

Identification of the product: CAS# 1244733-77-4; EC# 807-935-0

Index Number: Not available

REACH registration No.: 01-2119486772-26-0009

I.2 Relevant identified uses of the substance or mixture and uses advised against:

Identified uses:

FLAME RETARDANT TCPP is used as flame retardant in polyurethane foams such as polyurethane resins, epoxy resins. PC 1:Adhesives, sealants

PC 9a: Coatings and paints, thinners, paint removes

PC 21: Laboratory chemicals

PC 32: Polymer preparations and compounds

PC 34:Textile dyes, and impregnating products

SU 0: Other: SU3: all industrial uses

SU 5: Manufacture of textiles, leather, fur

SU 12: Manufacture of plastics products, including compounding and conversion

SU 18: Manufacture of furniture

SU 19: Building and construction work

Uses advised against:

Not available.

I.3 Details of the supplier of the safety data sheet:

Supplier(Only representative): Chemical Inspection & Regulation Service Limited

Supplier(Manufacturer): Yantai Sanjiang Chemical Industry Material Co., Ltd.

Address: N0.78, Donglin South Street, Zhifu District, Yantai City, Shandong Province Of China

Contact person(E-mail): sdpu.cn

Telephone: +86-576-85454695

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I.4 Emergency telephone No.:

+86-532-83854090

Available outside office hours? YES

2 Hazards Identification

2.1 Classification of the substance or mixture

According to REGULATION (EC) No 1272/2008, based on available data, the substance is classified as following:

REGULATION (EC) No 1272/2008

Hazard classes/Hazard categories	Hazard Codes
Acute Toxicity: 4	H302

2.2 Label elements

Hazard Pictograms:



Signal Word(S): Warning

Hazard Statement: H302 Harmful if swallowed.

Precautionary statement(s): P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

P330 Rinse mouth.

P501 Dispose of contents/container to local regulations.

Supplemental Hazard information (EU)

Not applicable.

2.3 Other hazards:

The substance is not PBT / vPvB.

The substance is not identified as having endocrine disrupting properties.

3 Composition/information on ingredients

3.1 Substance/Mixture: Substance

3.2 Ingredient(s):

Chemical Name	Registration No.	CAS No.	EC No.	Concentration
Reaction products of phosphoryl trichloride and methyloxirane	01-2119486772-26-0009	1244733-77-4	807-935-0	>99.5%

3.3 Additional information:

This product can also be described as:

CAS No.13674-84-5 Tris (1-chloro-2-propyl) phosphate (99.5%).

This product can also be described as:

EC No. 911-815-4 Reaction mass of tris(2-chloropropyl) phosphate and tris(2-chloro-1-methylethyl) phosphate and Phosphoric acid, bis(2-chloro-1-methylethyl) 2-chloropropyl ester and Phosphoric acid, 2-chloro-1-methylethyl bis(2-chloropropyl) ester (99.5%).

4 First aid measures

4.1 Description of first aid measures:

In all cases of doubt, or when symptoms persist, seek medical attention.

Inhalation: Move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if irritation develops or persists.

Skin: Remove contaminated clothing and shoes. Wash thoroughly with soap and water. If feel unwell, seek medical advice.

Eyes: Remove contact lenses. Hold eyelids apart and flush immediately with water for at least 15 minutes. Seek medical attention.

Ingestion: Rinse mouth. Give water to drink. Induce vomiting. Never induce vomiting in unconscious or

confused persons. Always seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed.

4.3 Indication of any immediate medical attention and special treatment needed

If skin irritation or rash occurs, get medical advice/attention.

5 Fire-Fighting measures

5.1 Extinguishing media:

Suitable extinguishing media: Carbon dioxide, appropriate foam or dry chemical, water spray, water mist.

Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture

When heated to decomposition, may release poisonous and corrosive fumes of Carbon Dioxide, Carbon Monoxide, Phosphorus Oxides and Halogenated compounds.

5.3 Advice for fire-fighters:

Full protective clothing and self-contained breathing apparatus (SCBA). Contain fire fighting water to prevent entry into water or drainage systems.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Keep away from heat, sparks and flame. Maintain good ventilation, use appropriate respiratory protective equipment. Avoid skin and eye contact. Use proper personal protective equipment as indicated in Section 8. Keep people away from and upwind of spill/leak.

For emergency responders:

Wear an appropriate NIOSH/MSHA approved respirator if vapor is generated.

6.2 Environmental Precautions:

Avoid direct discharge to sewers and surface waters. Do not allow material to be released to the environment without proper governmental permits.

6.3 Methods for Containment and Cleaning up:

MINOR SPILLS: Remove all ignition sources. Clean up all spills immediately.

Avoid breathing vapors and contact with skin and eyes. Control personal contact by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labeled container for waste disposal.

MAJOR SPILLS: Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. No smoking, naked lights or ignition sources. Increase ventilation. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect recoverable product into labeled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labeled drums for disposal. Wash area and prevent runoff into drains. If contamination of drains or waterways occurs, advise emergency services.

6.4 Reference to other sections:

See Section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

7 Handling and storage

7.1 Precautions for Safe handling:

Protective measures:

Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. DO NOT enter confined spaces until atmosphere has been checked. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storing and handling recommendations. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. DO NOT allow clothing wet with material to stay in contact with skin.

Advice on general occupational hygiene:

Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities:

Store at room temperature. Keep away from ignition sources. Avoid contact with incompatible materials. Protect containers against physical damage and check regularly for leaks. Store in accordance with all current regulations and standards. Keep container tightly closed when not in use. Follow all precautionary information on container label, product information and safety data sheet.

7.3 Specific end use(s):

Not applicable.

8 Exposure control/personal protection

8.1 Control parameters:

Occupational exposure limits: Not available

Additional exposure limits under the conditions of use: Not available

DNEL/DMEL and PNEC-Values:

Workers - Hazard via inhalation route	Systemic effects-Long term exposure	DNEL=8.2 mg/m ³
Workers - Hazard via inhalation route	Systemic effects-Acute/short term exposure	DNEL=22.6 mg/m ³
Workers - Hazard via dermal route	Systemic effects-Long term exposure	DNEL=2.91 mg/kg bw/day
Workers - Hazard via dermal route	Systemic effects-Acute/short term exposure	No hazard identified
General Population - Hazard via inhalation route	Systemic effects-Long term exposure	DNEL=1.45 mg/m ³
General Population - Hazard via inhalation route	Systemic effects-Acute/short term exposure	DNEL=5.6 mg/m ³
General Population - Hazard via dermal route	Systemic effects-Long term exposure	DNEL=1.04 mg/kg bw/day
General Population - Hazard via dermal route	Systemic effects-Acute/short term exposure	No hazard identified
General Population - Hazard via oral route	Systemic effects-Long term exposure	DNEL=0.52 mg/kg bw/day
General Population - Hazard via oral route	Systemic effects-Acute/short term exposure	DNEL=2 mg/kg bw/day
Hazard for aquatic organisms	Freshwater	PNEC=0.32 mg/L
Hazard for aquatic organisms	Marine water	PNEC=0.032 mg/L
Hazard for aquatic organisms	STP	PNEC=19.1 mg/L
Hazard for aquatic organisms	Sediment (freshwater)	PNEC=11.5 mg/kg sediment dw
Hazard for aquatic organisms	Sediment (marine water)	PNEC=1.15 mg/kg sediment dw
Hazard for terrestrial organisms	Soil	PNEC=0.34 mg/kg soil dw
Hazard for predators	Secondary poisoning	PNEC oral=11.6 mg/kg food

8.2 Exposure controls:

Appropriate engineering controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection	If contact is likely, safety glasses with side shields are recommended.
Skin protection-Hand protection	Skin contact with liquid or its aerosol should be prevented through the use of suitable protective clothing, gloves and footwear selected with regard for use condition exposure potential. Material of gloves Neoprene gloves
Skin protection-Body protection	Safety showers, with quick opening valves which stay open and eye wash fountains or other means of washing the eyes with a gentle flow of cool to tepid tap water should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freezeups in cold weather. Long sleeved clothing may be used to minimize skin contact.
Respiratory protection	Use a NIOSH-approved organic vapor/acid gas respirator (OVAG) with dust, mist and fume filters to reduce potential for inhalation exposure if use conditions generate vapor, mist or aerosol and adequate ventilation (e.g., outdoor or well-ventilated area) is not available. Where exposure necessitates a higher level of protection use a NIOSH-approved, positive pressure, pressure demand, air-supplied respirator.
Thermal hazards	Avoid discharge into the environment. According to local regulations, Federal and official regulations.

9 Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Appearance:	Liquid
Color:	Colorless to yellowish transparent
Odour:	Slightly
Odour threshold:	Not available
pH:	Not determined
Melting point/range (°C):	-20 °C at 101325 Pa
Boiling point/range (°C) :	288 °C at 101325 Pa
Flash point (°C) :	>245 °C (Closed cup) at 101325 Pa
Evaporation rate:	Not determined
Flammability (solid, gas);	Non flammable
Upper/lower flammability/explosive limits:	Not available
Vapor pressure:	1.4×10 ⁻³ Pa at 25 °C
Vapor density:	Not available
Relative Density:	1.293±0.005 g/cm ³ at 20 °C
Bulk density (kg/m ³) :	Not available
Water solubility (g/l) :	1.08 g/l at 20 °C
n-Octanol/Water (log Po/w) :	2.68 at 30 °C
Auto-ignition temperature:	>400 °C
Decomposition temperature:	>200 °C
Molecular weight:	327.57
Molecular formula:	C ₉ H ₁₈ C ₁₃ O ₄ P
Viscosity, dynamic (mPa·s) :	65-72 mPa·s at 25 °C
Explosive properties:	Non explosive
Oxidising properties:	Non-oxidising

9.2 Other information

Fat solubility(solvent-oil to be specified) etc:	Not available
Surface tension:	Not available
Dissociation constant in water(pKa):	Not available
Oxidation-reduction Potential:	Not available

10 Stability and reactivity

10.1 Reactivity: The substance is stable under normal storage and handling conditions.

10.2 Chemical stability: The substance is stable under normal storage and handling conditions, not sensitive to light.

10.3 Possibility of hazardous reactions: Under normal conditions, not hazardous reactions will occur.

10.4 Conditions to avoid:

Avoid prolonged storage at elevated temperatures (above 50°C). Avoid contact with strong acids, strong bases and strong oxidizers.

Prolonged storage at elevated temperatures under wet conditions should be avoided. Care should be taken to prevent moisture from condensing in the container.

10.5 Incompatible materials: Strong acids, strong alkalis and strong oxidizers.

10.6 Hazardous decomposition products: Carbon dioxide and carbon monoxide, phosphorus oxides and hydrogen chloride.

11 Toxicological information

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

Acute toxicity:

LD50(Oral, Rat): 500-2000 mg/kg (male)

632 mg/kg (female)

LD50(Dermal, Rabbit): >2000 mg/kg bw

LC50(Inhalation/4h, Rat): >7 mg/l air

Skin corrosion/Irritation:

Not irritating

Serious eye damage/irritation:

Not irritating

Respiratory or Skin sensitization:

Not sensitising

Germ cell mutagenicity:

This product is not considered as a mutagenic and genotoxic substance.

Carcinogenicity:

Not available

Reproductive toxicity:

Not available

STOT- single exposure:

Not classified

STOT-repeated exposure:

Not classified

Aspiration hazard:

Not classified

11.2 Information on other hazards:

Endocrine disrupting properties: The substance is not identified as having endocrine disrupting properties.

Other information: Not applicable

12 Ecological information

12.1 Toxicity:

	Acute toxicity	Time	Species	Method	Evaluation	Remarks
LC50	51 mg/l	96h	Fish	OECD 203	N/A	N/A
EC50	131 mg/l	48h	Daphnia	OECD 202	N/A	N/A
EC50	82 mg/l	72h	Algae	OECD 201	N/A	N/A

Chronic (long-term) toxicity:	Value
NOEC (Fish):	N/A
NOEC (Aquatic invertebrates):	32 mg/l
NOEC (Algae/aquatic plants):	13 mg/l

12.2 Persistence and degradability:

Inherently biodegradable.

12.3 Bioaccumulative potential:

BCF for fish have ranged from 0.8 to 14.

12.4 Mobility in soil:

Not available.

12.5 Results of PBT and vPvB assessment:

The substance is not PBT / vPvB.

12.6 Endocrine disrupting properties:

The substance is not identified as having endocrine disrupting properties.

12.7 Other adverse effects:

Not available.

12.8 Additional information:

Not available.

13 Disposal considerations

13.1 Waste treatment methods

Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

13.2 Waste from residues/unused products:

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

13.3 Contaminated packaging:

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14 Transport information

	Land transport (ADR/RID)	Inland waterways (ADN)	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN-Number:	Not regulated	Not regulated	Not regulated	Not regulated
UN Proper shipping name:	Not regulated	Not regulated	Not regulated	Not regulated
Transport hazard Class:	Not regulated	Not regulated	Not regulated	Not regulated
Packaging group:	Not regulated	Not regulated	Not regulated	Not regulated
Environmental hazards:	Not regulated	No	Not regulated	Not regulated
Special precautions for user:	See section 2.2	See section 2.2	See section 2.2	See section 2.2
Maritime transport in bulk according to IMO instruments	Not regulated	Not regulated	Not regulated	Not regulated

15 Regulation information

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

Relevant information regarding authorization:	Not applicable.
Relevant information regarding restriction:	Not applicable.
Other EU regulations:	Employment restrictions concerning young person must be observed. For use only by technically qualified individuals.
Other National regulations:	Not applicable

15.2 Other Inventory Status

Country(s)or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)/Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)/European List of Notified Chemical Substances (ELINCS)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16 Other information:**16.1 Indication of changes:**

Version 2.0 Amended by (EU) 2020/878

16.2 Abbreviations and acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation for rail International transportation of Dangerous goods

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: Code international maritime dangerous goods code

ICAO: International Civil Aviation Organization

IATA: International Air Transport Association

LC50: median lethal concentration

EC50: The effective concentration of substance that causes 50% of the maximum response.

NOEC: No Observed Effect Concentration

DNEL: derived no-effect level

PNEC: predicted no-effect concentration

16.3 Key literature references and sources for data

ECHA Registered substances data.

16.4 Training instructions: Not applicable.**16.5 Further information:**

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

16.6 Notice to reader:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.