

Material Safety Data Sheet

Pacific InterChem Co., Ltd

Date / Revised : 17. Apr, 2020 (Rev.4.1)

This GHS-MSDS is published according to 41 Article of the Industry Health and Safety Act of Korea
And may not meet the regulatory requirements in other countries.

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SECTION 1. IDENTIFICATION

Product name POLY TS 30A

Manufacturer/Supplier's details

Company name of supplier Pacific InterChem Co., Ltd

Address 1923 Hyundai VentureVille713 Suseo-dong, Gangnam-gu, Seoul, Korea

Telephone 82- 2- 2040-7317(Head office), +82- 31- 761-1339(Plant)

Emergency telephone 82- 31-761-1339 (Plant)

Recommended use of the chemical and restrictions on use

Recommended use Plastics Additives, for Industrial use only

SECTION 2. HAZARD IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200
Korea Act No. 11789, concerning 'Registration and Evaluation, etc. of
Chemical Substances'

: Not a hazardous substance or mixture.

GHS Label elements : Not a hazardous substance or mixture.

Hazard Pictograms : Not applicable

Signal word : Not applicable

The thermal decomposition vapors of fluorinated plastics may cause polymer fume fever with flulike symptoms in humans, especially when smoking contaminated tobacco. Dust contact with the eyes can lead to mechanical irritation. Contact with dust can cause mechanical irritation or drying of the skin.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

		CAS No.	Concentration (Wt %)
Chemical nature	PTFE, Poly(ethylene tetrafluoride)	9002-84-0	1 – 50 %
	Poly(styrene-co-acrylonitrile)	9003-54-7	1 – 50 %

The exact concentrations are trade secret.

Hazardous ingredients No hazardous ingredients

SECTION 4. FIRST AID MEASURES

General advice In the case of accident or if you feel to satisfy NOT good on your health condition, seek medical advice immediately. Also when symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air. Get medical attention if symptoms occur.

In case of skin contact : Wash with water and soap. Get medical attention if symptoms occur.

In case of eye contact : If in eyes, rinse well with water.
Get medical attention if irritation develops and persists.

If swallowed : If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur.
Rinse mouth thoroughly with water.

Protection of first-aiders : No special precautions are necessary for first aid responders.

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SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Carbon dioxide(CO2), Dry extinguishing chemical, water spray, Alcohol-resistant foam, Water spray

Unsuitable extinguishing media : None known

Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.

Hazardous combustion products : (For PTFE, Poly(ethylene tetrafluoride))
Hydrogen fluoride
carbonyl fluoride
potentially toxic fluorinated compounds
aerosolized particulates
carbon oxides

(For Poly(styrene-co-acrylonitrile))

carbon dioxide,
carbon monoxide
styrene
acrylonitrile
hydrogen cyanide
hydrocarbons.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

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Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning Up Sweep up or vacuum up spillage and collect in suitable container for disposal.
Avoid dispersal of dust i the air (i.e., clearing dust surfaces with compressed air).
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this MSDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : Processing may form hazardous compounds (see section10).
Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.
Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

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Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling
Do not breathe dust.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
Minimize dust generation and accumulation.
Keep container closed when not in use.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage
Keep in properly labeled containers.
Store in accordance with the particular national regulations.

Materials to avoid
Do not store with the following product types:
Strong oxidizing agents

Further information on storage
Stable under recommended storage conditions.

Stability

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products (PTFE)

Components	CAS No.	Value type	Permissible concentration	Basis
Hydrofluoric acid	7664-39-3	TWA	3 ppm, 2.5mg/m ³	NIOSH REL
		C	6 ppm, 5 mg/m ³	NIOSH REL
		TWA	3 ppm	OSHA Z-2

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		TWA	0.5 ppm (Fluorine)	ACGIH
Carbonyl difluoride	353-50-4	TWA	2 ppm	ACGIH
		STEL	5 ppm	ACGIH
		ST	5 ppm, 15 mg/m ³	NIOSH REL
		TWA	2 ppm, 5 mg/m ³	NIOSH REL
Carbon dioxide	124-38-9	TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
		TWA	5,000 ppm, 9,000 mg/m ³	OSHA Z-1
		TWA	5,000 ppm, 9,000 mg/m ³	NIOSH REL
		ST	30,000 ppm, 54,000 mg/m ³	NIOSH REL
Carbon monoxide	630-08-0	TWA	25 ppm	ACGIH
		TWA	35 ppm, 40 mg/m ³	NIOSH REL
		C	200 ppm, 229 mg/m ³	NIOSH REL
		TWA	50 ppm, 55 mg/m ³	OSHA Z-1

Engineering measures

Processing may form hazardous compounds (see section10).

Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

Personal protective equipment

Respiratory protection

General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use

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NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection Material

Heat resistant gloves

Remarks

Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often.

Eye protection

Wear the following personal protective equipment:
Safety goggles

Skin and body protection

Skin should be washed after contact.

Hygiene measures

Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.

Exposure Guidelines of decomposition product(SAN)

United States

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Although no exposure limit has been established for this product, the OSHA PEL for Particulates not Otherwise Regulated (PNOR) of 15 mg/m³ total dust, 5 mg/m³ respirable fraction is recommended.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form Powder

Color White

Odor odorless

pH Value No data available

Melting point/freezing point Not established

Initial boiling point and boiling range No data available

Flash point Not applicable

Flammability (solid, gas) Not classified as a flammability hazard, Not self-igniting

Upper explosion limit / Upper flammability limit No data available

Lower explosion limit / Lower flammability limit No data available

Vapor pressure Not applicable

Relative vapor density Not applicable

Bulk density 0.43 ~ 0.71 g/cm³

Solubility in water insoluble

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Partition coefficient: n-octanol/
water No data available

Autoignition temperature No data available

Decomposition temperature No data available

Viscosity (Kinematic) Not applicable

Oxidizing properties The substance or mixture is not classified as oxidizing.

Particle size No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity (PTFE) Not classified as a reactivity hazard.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions Can react with strong oxidizing agents.
Hazardous decomposition products will be formed at elevated temperatures.

Conditions to avoid None known.

Incompatible materials Oxidizing agents

Hazardous decomposition products

Thermal decomposition (PTFE): Hydrofluoric acid

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Carbonyl difluoride

Carbon dioxide

Carbon monoxide

Reactivity(SAN): Hazardous polymerization does not occur.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: None known

Incompatible Materials: None known

Thermal decomposition (SAN):
Carbon dioxide
Carbon monoxide
Styrene
Acrylonitrile
Hydrogen cyanide
Hydrocarbons

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure(PTFE)

Inhalation

Skin contact

Ingestion

Eye contact

Acute toxicity

Not classified based on available information.

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

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Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

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Aspiration toxicity Not classified based on available information.

Toxicity Data for Styrene/Acrylonitrile Copolymer (SAN)

Acute Oral Toxicity: LD50 >2000 mg/kg (rat)

Acute Dermal Toxicity: LD50 >2,000 mg/kg (rabbit) estimated

Skin Irritation: rabbit – No skin irritation

Eye Irritation: rabbit – No eye irritation

Sensitization: Dermal – non-sensitizer (guinea pig maximization test (GPMT)), non-sensitizer human

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity	No data available
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Other adverse effects	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal method

Waste from residues

Must be sent a suitable incineration plant, observing local regulations.

Uncleaned empties should be disposal of in the same manner as the contents.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

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SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

This product is NOT classified as dangerous substance for RTDG

IATA-DGR

This product is NOT classified as dangerous substance for IATA Transport

MDG-Code

This product is NOT classified as dangerous substance for MDG Transport

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

United States Federal Regulations

US OSHA Hazard Communication Classification: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200).

US Toxic Substance Control Act : All the components of this product are listed on the TSCA Inventory

US EPA Emergency Planning and
Community Right to Know Act (EPCRA)

Superfund Amendments and Reauthorization Act Title III

Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):

Components : None

SECTION 16. OTHER INFORMATION

Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosion from the Manufacturing, Processing, and

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Handling of Combustible Particulate Solids, for safe handling.

NFPA 704 Rating

Health 0

Flammability 1

Instability 0

Other

0=Insignificant 1=Slight 2=Moderate 3=Serious 4=Extreme

HMIS Rating

Health 0

Flammability 1

Physical Hazard 0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

NIOSH REL : USA. NIOSH Recommended Exposure Limits

OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

OSHA Z-2 : USA. Occupational Exposure Limits (OSHA) - Table Z-2

ACGIH / TWA : 8-hour, time-weighted average

ACGIH / STEL : Short-term exposure limit

ACGIH / C : Ceiling limit

NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday

NIOSH REL / C : Ceiling value not be exceeded at any time.

OSHA Z-1 / TWA : 8-hour time weighted average

OSHA Z-2 / TWA : 8-hour time weighted average

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AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with

x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health

Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL 73/78-1973 as modified by the Protocol of 1978 / International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments

and Reauthorization Act; MSDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative. STOT-SE, specific target organ toxicity - single exposure.

NIOSH, National Institute for Occupational Safety and Health; OSHA, Occupational Safety and Health Administration.

CERCLA, Comprehensive Environmental Response, Compensation, and Liability Act (In 1980, U.S)

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Information source and references:

National Library of Medicine/Hazardous Substances Data Bank(NLM/HSDB)

European Chemicals Agency,

Korea Occupational Safety and Health Agency,

National Institute of Chemical Safety,

Occupational Safety and Health Administration,

Legal Information Institute of Cornell Law School

Fire Protection

1910.1200 App D - Safety Data Sheets (Mandatory)

EPA, the Toxic Substances Control Act,

Hazard Communication Information Sheet reflecting the US OSHA Implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS),

Recommended Exposure Limits and Permissible Exposure Limits

1760 as a marine classification society,

IATA Safety Report,

REGULATING THE CARRIAGE OF DANGEROUS GOODS,

Comprehensive Environmental Response, Compensation, and Liability Act(CERCLA),

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