CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

1. Chemical product and company identification

Product name **ANTIOXIDANT AT-10**

Product Code N/A

Manufacturer/Supplier SI Group Fine Chemicals - Shanghai Co., Ltd.

Address No. 66 Hai Jin Road
Jinshan District, Shanghai 201512
China

Contact person Not available.

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CHEMTREC UK (London): +(44)-870-8200418
CHEMTREC International: +1-703-741-5970

Recommended use and Limitations on use

Recommended use Industrial uses: Uses of substances as such or in preparations at industrial sites

Limitations on use For industrial use only.

Issue date 03-22-2017

Revision date 08-17-2017

Supersedes date 05-14-2017

2. Hazards identification

Emergency overview May form combustible dust concentrations in air. May cause eye irritation May cause skin irritation. May cause irritation to the respiratory system. May affect mucous membranes May cause gastrointestinal disturbances. Prolonged exposure may cause chronic effects.

Hazard categories

Not classified.

Label elements

Pictograms None.

Signal word None.

Hazard statement The product does not meet the criteria for classification.

Precautionary statement

Prevention Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response IF exposed or concerned: Get medical advice/attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Wash with plenty of soap and water.

Storage Store in accordance with local regulations.

Disposal Dispose of contents/container in accordance with local regulation.

Supplemental information May form combustible dust concentrations in air.

3. Composition/information on ingredients

Substance/mixture Substance

Chemical name	CAS Number	Concentration (%)
PENTAERYTHRITOL TETRAKIS [3-(3',5'-DI-TERT-BUTYL-4'-HYDROXYPHENYL)-PROPIONATE]	6683-19-8	>96

4. First aid measures

Inhalation Move to fresh air. For breathing difficulties, oxygen may be necessary. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not use mouth-to-mouth method if victim inhaled the substance. Get medical attention if symptoms occur.

Skin contact Remove and isolate contaminated clothing and shoes. Wash off with warm water and soap. For minor skin contact, avoid spreading material on unaffected skin. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if symptoms occur.

Ingestion IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to a victim who is unconscious or is having convulsions. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms and health effects Exposure to powder or dusts may be irritating to eyes, nose and throat.

Expected acute symptoms and delayed symptoms May cause irritation or burning to skin, respiratory system or eyes When in doubt or symptoms persist, seek medical attention

Personal protection for first-aid responders Take off contaminated clothing and shoes immediately. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

Notes to physician In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.

5. Fire-fighting measures

Extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Extinguishing media to avoid Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards Fire may produce irritating, corrosive and/or toxic gases.
Auto-ignition point - not known
Not flammable but will support combustion

Special fire fighting procedures Cool containers exposed to heat with water spray and remove container, if no risk is involved. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back.

Protection of fire-fighters Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.

General fire hazards High concentration of airborne dust may form explosive mixture with air. Ensure that good housekeeping practices are followed as well as applicable guidelines such as the National Fire Protection Association [NFPA] 654, "Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids". The Minimum Ignition Energy for some organic solids as a dust may be as low as 3 mJ [millijoules]. The Minimum Explosive Concentration for some organic solids as a dust may be as low as 0.025 oz/ft3 or ~20 g/m3.

Specific methods In the event of fire and/or explosion do not breathe fumes. Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Remove all sources of ignition. Avoid inhalation of vapors and spray mists. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Follow facility/company's emergency plans.

For emergency responders Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep upwind. Keep out of low areas. Avoid inhalation of vapors and spray mists. Wear appropriate protective equipment and clothing during clean-up. Remove all sources of ignition. Ventilate closed spaces before entering them.

Environmental precautions Prevent further leakage or spillage if safe to do so. Eliminate sources of ignition. Ventilate the contaminated area. Prevent spreading over a wide area (e.g. by containment or oil barriers). Prevent entry into waterways, sewer, basements or confined areas. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Clean-up methods and materials and containment measures

Eliminate ignition sources including sources of electrical, static or frictional sparks. Ventilate the contaminated area. Avoid dust formation. Wear appropriate protective equipment and clothing during clean-up.

Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Clean surface thoroughly to remove residual contamination.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.

Prevention of secondary hazards

Do not allow product to enter sewer or waterways.

7. Handling and storage

Handling

Use good personal hygiene practices Guard against dust accumulation of this material. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes. Avoid contact with skin. Wear personal protective equipment. Do not use in areas without adequate ventilation. Avoid prolonged exposure. "Empty" containers retain product residue (liquid or vapor) and can be dangerous. Do not re-use empty containers.

Storage

Store away from incompatible materials (see Section 10 of the SDS). Guard against dust accumulation of this material. Keep away from heat, sparks and open flame. Keep containers tightly closed in a dry, cool and well-ventilated place. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Use care in handling/storage.

8. Exposure controls/personal protection

Exposure guidelines

All PPE use is to be determined by a qualified person.

Exposure limits

China OELs. Occupational Exposure Limits for Hazardous Agents in the Workplace, Chemical Hazardous Agents (GBZ 2.1-2007)

Components	Type	Value	Form
DUST	PC-TWA	8 mg/m3	Total dust.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Control parameters

Follow standard monitoring procedures.

Engineering measures

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ventilation should be sufficient to effectively remove, and prevent buildup of, any vapors, dusts, or fumes that may be generated during handling or thermal processing. In order to ensure appropriate electrical safety practices are followed, consult applicable standards. These may include guidelines such as the National Fire Protection Association [NFPA] 70, "The National Electrical Code" and NFPA 499, "Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas ". NOTE: since this material's vapors, dust or fumes can form explosive mixtures in air, ensure that any potential areas where explosions may occur are designed to minimize potential damage. For recommendations to prevent such explosions and associated damage, consult applicable guidelines such as NFPA 69, "Standard on Explosion Prevention Systems" and/or NFPA 68, "Guide for Venting Deflagrations".

Personal protective equipment

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels 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 work place conditions warrant a respirator's use.

Hand protection

Wear protective gloves.

Eye protection

Avoid contact with eyes. Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear: Face-shield. Eye wash fountain is recommended.

Skin and body protection

Wear suitable protective clothing. Wear impervious gloves for prolonged contact.

Hygiene measures

Do not get in eyes, on skin, on clothing. Wash hands after handling and before eating.

9. Physical and chemical properties

Appearance	Odorless, white to off-white powder.
Physical state	Solid.
Form	Powder
Color	White.
Odor	Odorless.
pH	Not available.
Melting point/freezing point	230 - 257 °F (110 - 125 °C)
Boiling point, initial boiling point, and boiling range	537.8 °F (281 °C)
Flash point	> 203.0 °F (> 95.0 °C) Closed Cup
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	N/A
Vapor density	>Air
Relative density	1.11 g/cm³ at 20°C
Density	Not available.
Solubility(ies)	
Solubility (water)	Not very soluble [<1%]
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Evaporation rate	<Ether
Other data	
Flash point class	Combustible IIIB
Molecular formula	C73H108O12
Molecular weight	1177.63
Specific gravity	1.11 at 20°C

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Avoid dust close to ignition sources.
Incompatible materials	Incompatible with strong acids and bases.
Hazardous decomposition products	Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

11. Toxicological information

Acute toxicity	May cause eye/skin irritation. May cause irritation of respiratory tract. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Components	**Species**	**Test Results**
PENTAERYTHRITOL TETRAKIS [3-(3',5'-DI-TERT-BUTYL-4'-HYDROXYPHENYL)- PROPIONATE] (CAS 6683-19-8)		
Acute		
Dermal		
LD50	Rabbit	> 3160 mg/kg

Components	Species	Test Results
Inhalation		
LC50	Rat	> 1951 mg/m³, 4 hours
Oral		
LD50	Rat	> 5000 mg/kg

Routes of exposure Eye contact. Skin contact. Ingestion. Inhalation.

Symptoms Product dust may be irritating to eyes, skin and respiratory system.

Skin corrosion/irritation May be irritating to the skin.

Serious eye damage/eye irritation Dust or powder may irritate eye tissue.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitizer May cause sensitization by skin contact.

Germ cell mutagenicity Not classified.

Carcinogenicity Not classified.

Toxic to reproduction Not classified.

Specific target organ toxicity following single exposure Not classified.

Specific target organ toxicity following repeated exposure Not classified.

Aspiration hazard Not classified.

Chronic effects Prolonged exposure may cause chronic effects.

Other information The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.

12. Ecological information

Ecotoxicity This material is not expected to be harmful to aquatic life.

Ecotoxicological data

Components		Species	Test Results
PENTAERYTHRITOL TETRAKIS [3-(3',5'-DI-TERT-BUTYL-4'-HYDROXYPHENYL)- PROPIONATE] (CAS 6683-19-8)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia	> 86 mg/l, 24 hours
Fish	LC50	Zebra fish (Brachydanio rerio)	> 100 mg/l, 96 hours

Persistence and degradability Not inherently biodegradable.

Bioaccumulation No data is available on the product itself.

Bioaccumulative potential

Octanol/water partition coefficient log Kow	
PENTAERYTHRITOL TETRAKIS [3-(3',5'-DI-TERT-BUTYL-4'-HYDROXYPHENYL)-PROPIONATE]	22.7, at 25°C

Mobility in soil The product is essentially insoluble in water.

Other hazardous effects Not available.

13. Disposal considerations

Residual waste Dispose of in accordance with local regulations.

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. Do not re-use empty containers.

Local disposal regulations Dispose in accordance with all applicable regulations. Do not allow this material to drain into sewers/water supplies. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

14. Transport information

General information Not dangerous goods in the meaning of ADR/RID, ADNR, IMDG-Code, ICAO/IATA-DGR

ROAD/RAIL

Packaging Type: BULK-- TANK TRUCK/TANK CAR
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

Packaging Type: DRUM(s)/BAG(s)
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

Packaging Type: INTERMEDIATE BULK CONTAINER
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

Packaging Type: PAIL(s)/CAN(s)
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

AIR (ICAO/IATA)

Packaging Type: PAIL(s)/CAN(s)
Proper Shipping Name: Please call for shipping information.

VESSEL (IMDG)

Packaging Type: BULK-- TANK TRUCK/TANK CAR
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

Packaging Type: DRUM(s)/BAG(s)
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

Packaging Type: INTERMEDIATE BULK CONTAINER
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

Packaging Type: PAIL(s)/CAN(s)
Proper Shipping Name: CHEMICALS, N.O.I. - NOT REGULATED FOR TRANSPORT

15. Regulatory information

Applicable regulations This safety data sheet was prepared in accordance with GB/T 16483-2008: Safety Data Sheet for Chemical Products - Content and Order of Sections. This safety data sheet conforms to the following laws, regulations and standards:
Regulations on the Control over Safety of Dangerous Chemicals
Regulations on Labor Protection in Workplaces Where Toxic Products Are Used
Measures for the Safe Use of Chemicals in Workplaces
Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/T 16483-2008)
General Rules for Preparation of Precautionary Labels for Chemicals (GB15258-2009)
Packing Symbol of Dangerous Goods(GB190-2009)
Packing - Pictorial Marking for Handling of Goods (GB/T191-2009)

Occupational exposure limits for hazardous agents in the workplace (GBZ 2.1-2007)

Not listed.

Classification and code of dangerous goods (GB 6944-2012)

Not regulated.

UN Recommendations on the Transport of Dangerous Goods (UN RTDG)

Not regulated.

16. Other information

References

ACGIH: American Conference of Governmental Industrial Hygienists.
ECHA: European Chemical Agency.
ERG: Emergency Response Guide
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
HSDB® - Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer - Monographs
NTP: National Toxicology Program - Report on Carcinogens
OSHA: Occupational Safety and Health Administration.
SI Group®: Test results
[Vendor]

List of abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists.
ADR: European agreement concerning the international carriage of dangerous goods by road (Accord européen relatif transport des merchandises dangereuses par route).
ANSI: American National Standards Institute.
Maximum permissible concentration of biological working substances (BAT: Biologische Arbeitsstofftoleranzwerte).
BOD5: Biochemical oxygen demand within 5 days.
CAS: Chemical Abstract Service.
CEN: European Committee for Standardization (Comité Européen de Normalisation).
CLP: Classification, Labeling and Packaging REGULATION (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.
DNEL: Derived No Effect Level.
EC: European Community.
EC50: Effective Concentration 50%.
ECHA: European Chemical Agency.
ICAO: International Civil Aviation Organization.
IMDG Code: International Maritime Dangerous Goods Code.
LC: Lethal Concentration.
LC50: Lethal Concentration 50%.
LD50: Lethal Dose 50%.
MAK: Threshold limit values Germany (Maximale Arbeitsplatzkonzentration - DFG).
N/A: Not available.
NY: New York State.
OSHA: Occupational Safety & Health Administration.
PBT: Persistent, bioaccumulative, toxic.
PEL: Permissible Exposure Limit.
PNEC: Predicted No Effect Concentration.
PPE: Personal Protective Equipment.
RCRA: Resource Conservation Recovery Act.
SCBA: Self-contained breathing apparatus.
STEL: Short-term Exposure Limit.
TDG: Transport of Dangerous Goods.
TSCA: Toxic Substance Control Act.
TWA: Time Weighted Average.
USA: United States of America.
vPvB: very Persistent, very Bioaccumulative.

Disclaimer

The data given here is based on current knowledge and experience. This Safety Data Sheet describes the product in terms of safety requirements and does not signify any warranty with regard to the product's properties.

The data given here only applies when product used for proper application(s). The product is not sold as suitable for other applications - usage in such may cause risks not mentioned in this sheet. Do not use for other application(s) without seeking advice from manufacturer

Revision information

Product and Company Identification: Product and Company Identification