

**SUMMARY OF RISK MANAGEMENT MEASURES FOR THE USE OF 4,4,13,13-Tetraethoxy-3,14-dioxo-8,9-dithia-4,13-disilahexadecane (CAS 56706-10-6)**

Chemical safety assessments have been performed to assess the risk associated with the following uses :

Identified use	Sector of Use - main user groups (SU)	Sector of Use – sectors of end-use	Preparation Category (PC)	Process category (PROC)	Article category (AC)	Environmental Release Category (ERC)
Intermediate	SU3	SU8,9	PC19	PROC1, PROC2, PROC3, PROC8b	-	ERC6a
Non-metal surface treatment agent	SU3	SU8, 13	PC15	PROC1, PROC2, PROC3, PROC8b	N/A	ERC6a, 6d
Tyre production -coupling agents	SU3	SU10, SU11	PC32	PROC4, PROC5, PROC9, PROC8b, PROC14, PROC21	AC 10	ERC3
Non-aqueous polymer preparation	SU3	SU10, SU11	PC32	PROC4, PROC5, PROC8b, PROC9, PROC14, PROC21	AC10	ERC3, ERC6d
Use as a laboratory chemical	SU3	SU24	PC21	PROC15	-	N/A

Safe use has been demonstrated by calculation of risk characterisation ratios. These are based on the following risk management measures:

Exposure scenario	Description	General measures	Specific Human Health risk management measures	Specific Environment risk management measures
ES1	Production (site specific)	(i) Procedural and technological control using Best Available Technique (BAT)	(i) Local Exhaust ventilation (LEV) (ii) Personal Protective Equipment (PPE): Fluorinated or nitrile rubber gloves/ gauntlets; Full-face respirator with ABEK-filter; Goggles or face shield and Self-contained, positive pressure breathing apparatus (for prolong or high exposures) (ii) Specific workers' training	(i) Use of air emission abatement equipments such as incinerators and scrubbers (ii) On-site pre-treatment – Dilution and removal of solids (iii) Treatment of effluent in biological waste water treatment plant. (iv) Incineration of waste
ES2, ES3, ES4 and ES5	Intermediate, non-metal surface treatment, tyre production and non-aqueous polymer preparation.	(i) Procedural and technological control using Best Available Technique (BAT)	(i) Local Exhaust ventilation (LEV) (ii) Personal Protective Equipment (PPE): Fluorinated or nitrile rubber gloves/ gauntlets; Full-face respirator with ABEK-filter; Goggles or face shield and Self-contained, positive pressure breathing apparatus (for prolong or high exposures) (iii) Workers' training	(i) Use of air emission abatement equipments such as incinerators, scrubbers and captor hoods (ii) Treatment of effluent in waste water treatment plant.
ES6	Laboratory reagent	Good Laboratory Practice (GLP)	(i) Local Exhaust ventilation (Fume cupboard) (ii) Personal Protective Equipment (PPE): Fluorinated or nitrile rubber gloves/ gauntlets; (iii) Workers' training	N/A

### Guidance on safe use

This is a relevant extract from more extended information in IUCLID section 11 and the eSDS.

Handling :  
 Advice on safe handling: Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Ensure adequate ventilation, especially in confined areas. Use proper bonding and grounding during material transfer. Other precautions: Releases hydrogen gas (flammable) on contact with strong acid or strong base. May release hydrogen on standing

incontainer. Since this product can, under certain conditions, evolve hydrogen gas, care should be taken to avoid exposure to flame, excessive heat, and sparks. The evolution of hydrogen gas is accelerated by the presence of metals such as lead (in solders), and zinc (in galvanised equipment), and alkalies. Care should, therefore, be taken to avoid contaminants in storage containers. Store containers in a well-ventilated area. Open them cautiously, in case they may be under a slight pressure. Have good ventilation and suitable protective equipment in areas where containers will be opened.

**Storage :**

Requirements for storage areas and containers : Keep container closed. Keep away from heat, sparks and flame.

**Engineering measures :**

Use only in an area equipped with a safety shower. Eye wash bottle with pure water

General (mechanical) room ventilation is expected to be satisfactory if handled at low temperatures or in covered equipment. Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air. Personal protective equipment Respiratory protection : Respirator with an ABEK filter; at high concentration use respiratory protection with independent air supply.

Hand protection : Advise : Protective gloves made of : butyl-rubber, Neoprene, Polyvinylchloride Eye protection : Safety glasses Skin and body protection : Safety shoes, Protective suit