

# SAFETY DATA SHEET



## Tflex™ CR350S

Version 2.0  
Document no. 130000158524

Revision Date 2023/11/02  
Issue Date 2024/02/15

This SDS adheres to the standards and regulatory requirements of China and may not meet the regulatory requirements in other countries.

### Section 1 - Chemical and Enterprise Identification

**Product name** : Tflex™ CR350S

**Product name in English** : Tflex™ CR350S

#### Recommended use of the chemical and restriction on use

**Recommended use** : For Experimental Use Only

**Restrictions on use** : Do not use product for anything outside of the above specified uses.

#### Manufacturer, importer, supplier

**Company** : Tianjin Laird Technologies Ltd  
**Street address** : C3&C4 Building, HongTai Industry Park, NO. 87 Tai Feng Road, TEDA, Tianjin, China  
**Telephone** : 86 22 66298160  
**E-mail address** : dl-c-cn-gcncsr@dupont.com

**Emergency telephone number** : 86 532 8388 9090

**Date of first preparation** : 2023/11/02

### Section 2 - Hazard Identification

#### GHS Hazard Category

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS).  
Endpoints which are not classified, cannot be classified or are not applicable are not shown.

#### Main Symptom After Contact

Refer to section 4 of this SDS for information on symptoms, hazards and treatment after contact.

### Section 3 - Ingredients/Composition Information

**Chemical nature** : Mixture

#### Components

Chemical name	CAS-No.	Concentration
Inorganic metal oxide		90 - 100%
Aluminum borate oxide (Al <sub>18</sub> (BO <sub>3</sub> ) <sub>4</sub> O <sub>21</sub> )	12005-61-7	0.1 - 1%

### Section 4 - First-aid Measures

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In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). First Aid responders should pay attention to self-protection and use the recommended protective clothing. Remove from exposure, lie down.

- Inhalation** : Is not an expected route of exposure under normal conditions. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Keep person calm. If symptoms persist, call a physician. If unconscious, place in recovery position and get medical attention immediately. Keep respiratory tract clear.
- Skin contact** : Take off contaminated clothing and shoes immediately. Wash off with soap and water. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse. Thoroughly clean shoes before reuse.
- Eye contact** : If easy to do, remove contact lens, if worn. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.
- Ingestion** : Rinse mouth. Call a physician immediately. Do NOT induce vomiting. Place unconscious person on the side in the recovery position and ensure open airways. Do not give anything by mouth to an unconscious person.
- Most important symptoms/effects, acute and delayed** : May irritate skin.  
May irritate eyes.  
May cause irritation of the mucous membranes.  
For further information see Section 11.
- Protection of first-aiders** : No information available.
- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Symptoms may be delayed for several hours.

### Section 5 - Fire-fighting Measures

- Suitable extinguishing media** : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Dry powder, Sand
- Unsuitable extinguishing media** : Water, Carbon dioxide (CO<sub>2</sub>), Foam
- Specific hazards** : Material will burn. May release toxic and/or hazardous fumes and gases. Dust may form explosive mixture in air. Do not allow run-off from fire fighting to enter drains or water courses. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.  
Hydrocarbons, carbon dioxide, Carbon monoxide, Metal oxides, Silicon oxides
- Special protective equipment for firefighters** : Wear full protective clothing and self-contained breathing apparatus.

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- Specific extinguishing methods** : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so. Evacuate area. Use water spray to cool unopened containers. Do not allow run-off from fire fighting to enter drains or water courses. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Further information** : In the event of fire and/or explosion do not breathe fumes. Evacuate personnel to safe areas.

**Section 6 - Leak Emergency Treatment**

- Protective measures, devices and emergency treatment procedure for workers** : Keep unnecessary and unprotected personnel from entering. Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8. Control access to area. Avoid contact with the skin and the eyes. Evacuate personnel to safe areas. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Remove all sources of ignition. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. If the material is involved in a fire, or if dusts are produced, no action shall be taken involving any personal risk or without suitable training. Avoid breathing dust.
- Environmental precautions** : If the product contaminates rivers and lakes or drains inform respective authorities. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. The product should not be allowed to enter drains, water courses or the soil.
- Methods and materials for containment and cleaning up** : Sweep up or vacuum up spillage and collect in suitable container for disposal. For disposal instructions see section 13. Large spills should be collected mechanically (remove by pumping) for disposal. Eliminate all ignition sources if safe to do so. Move it to a safe place. Do not touch spilled material. Avoid dust formation. Wet wipe or vacuum up using a high efficiency particulate air (HEPA) vacuum. Use explosion proof equipment. Do not dry sweep dust accumulation.
- Prevention of secondary hazards** : No information available.
- Additional advice** : Dispose of in accordance with local regulations.

**Section 7 - Operation Handling and Storage****Operation Handling**

- Technical measures/Precautions** : For personal protection see section 8. Handle in accordance with good industrial hygiene and safety practice. Provide adequate ventilation. Use personal protective equipment as required. Wash hands thoroughly after handling. Take precautionary measures against static discharges. Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. Avoid exposure - obtain special instructions before use. Avoid contact during pregnancy and while nursing. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do not ingest. Use only with adequate ventilation/personal protection. Do not breathe dust.

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Precautions for safe handling : Keep away from heat and sources of ignition. No smoking.

### Storage

Suitable storage conditions : Keep in cool, dry place in original containers. Store away from incompatible materials (see Section 10). Store locked up. Store in a well-ventilated area away from heat and sunlight. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep tightly closed. Store in accordance with the particular national regulations.

Advice on common storage: Keep away from oxidizing agents, strongly acid or alkaline materials and amines.

Storage period: Store at room temperature.

## Section 8 - Exposure Control and Personal Protection

### Control parameters

Applicable occupational exposure limits are listed below.

Inorganic metal oxide		
PC-TWA	4 mg/m <sup>3</sup> (Total dust)	CN OEL (2019-08-27)
TWA (Aluminium)	1 mg/m <sup>3</sup> (Respirable particulate matter)	ACGIH (2013-03-01)
Aluminum borate oxide (Al <sub>18</sub> (BO <sub>3</sub> ) <sub>4</sub> O <sub>21</sub> )		
TWA (Borate)	2 mg/m <sup>3</sup> (Inhalable particulate matter)	ACGIH (2013-03-01)
STEL (Borate)	6 mg/m <sup>3</sup> (Inhalable particulate matter)	ACGIH (2013-03-01)

### Biological occupational exposure limits

No biological exposure limit values are applicable.

Engineering controls : Use a local and/or general ventilation system. Local exhaust ventilation should be employed to minimize airborne contamination. Use only with adequate ventilation. Any process that has the potential to generate dust should be performed using engineering controls, such as isolation, enclosures, local exhaust ventilation, wetting with appropriate solvent, or dust collection systems, to control airborne fibers and dusts below applicable limits. Use explosion-proof electrical, ventilating and lighting equipment.

### Personal protective equipment

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
Suitable respiratory equipment: Respirator with a full face mask  
Recommended Filter type: particulate prefilter

Hand protection : Material: Chemical-resistant gloves  
Material: butyl-rubber  
Material: Nitrile rubber  
Protective gloves should be worn when the potential exists for prolonged or repeated skin contact.

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Request information on glove permeation properties from the glove supplier. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

- Eye protection** : Wear safety glasses with side shields.  
Ensure that eyewash stations and safety showers are close to the workstation location.  
If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
- Skin protection** : Wear suitable protective clothing.  
Wear impervious, thermal barrier/insulated clothing such as gloves, apron, boots, or whole bodysuit to prevent ANY contact with liquid or vaporizing material.
- Hygiene measures** : Wash hands before breaks and immediately after handling the product. Wash hands before eating, drinking, or smoking. Regular cleaning of equipment, work area and clothing. Wash contaminated clothing before re-use. Remove contaminated clothing and protective equipment before entering eating areas.  
Avoid contact with the skin and the eyes.
- Protective measures** : Wear suitable protective equipment.

### Section 9 - Physical and Chemical Properties

#### **Appearance (Physical state, form, colour, etc.)**

- Physical state : solid  
Form : paste  
Colour : blend of white and yellow

**Odour** : odourless

**Odour Threshold** : No information available.

**pH** : No information available.

#### **Melting point/freezing point**

No information available.

#### **Boiling point, initial boiling point and boiling range**

No information available.

**Flash point** : No information available.

**Evaporation rate** : No information available.

**Flammability** : No information available.

#### **Upper/lower flammability or explosive limits**

- Upper explosion limit : No information available.  
Lower explosion limit : No information available.

**Vapour pressure** : No information available.

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<b>Vapour density</b>	:	No information available.
<b>Density</b>	:	
Density	:	3.14 g/cm <sup>3</sup>
<b>Solubility(ies)</b>	:	
Water solubility	:	insoluble
<b>Particle characteristics</b>	:	
Assessment	:	No information available.
<b>Partition coefficient: n-octanol/water</b>	:	No information available.
<b>Auto-ignition temperature</b>	:	
No information available.	:	
<b>Decomposition temperature</b>	:	No information available.
<b>Viscosity</b>	:	
Viscosity, kinematic	:	No information available.
<b>Molecular weight</b>	:	No information available.
<b>Oxidizing properties</b>	:	No information available.

### Section 10 - Stability and Reactivity

<b>Reactivity</b>	:	Stable at normal ambient temperature and pressure.
<b>Chemical stability</b>	:	Stable at normal ambient temperature and pressure.
<b>Possibility of hazardous reactions</b>	:	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	:	Decomposes on heating. Avoid prolonged exposure at or above the recommended processing temperatures.
<b>Materials to avoid</b>	:	Strong oxidizing agents, Strong acids, Strong bases, reactive metals
<b>Hazardous decomposition products</b>	:	Carbon oxides, Metal oxides

### Section 11 - Toxicological Information

#### Acute toxicity

##### Oral

Inorganic metal oxide	:	LD50/Rat: > 10,000 mg/kg Method: OECD Test Guideline 401
Aluminum borate oxide (AI18(BO3)4O21)	:	LD50/Rat: > 15,900 mg/kg Method: OECD Test Guideline 401 The substance or mixture has no acute oral toxicity Information given is based on data obtained from similar substances.

##### Inhalation

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- Inorganic metal oxide : LC50/4 h/Rat(dust/mist): > 5.09 mg/l  
Method: OECD Test Guideline 403  
Information given is based on data obtained from similar substances.
- Aluminum borate oxide : no data available  
(Al18(BO3)4O21)
- Dermal  
Aluminum borate oxide : no data available  
(Al18(BO3)4O21)
- Skin corrosion/irritation**
- Inorganic metal oxide : Species: Rabbit  
Result: No skin irritation  
Classification: No skin irritation  
Method: OECD Test Guideline 404
- Aluminum borate oxide : Species: Rabbit  
Result: Slight or no skin irritation  
Classification: No skin irritation  
Method: OECD Test Guideline 404  
Minimal effects that do not meet the threshold for classification.  
Information given is based on data obtained from similar substances.
- Serious eye damage/eye irritation**
- Inorganic metal oxide : Species: Rabbit  
Result: No eye irritation  
Classification: No eye irritation
- Aluminum borate oxide : Species: Rabbit  
Result: Slight or no eye irritation  
Classification: No eye irritation  
Minimal effects that do not meet the threshold for classification.  
Information given is based on data obtained from similar substances.
- Respiratory or skin sensitisation**
- Inorganic metal oxide : Species: Guinea pig  
Result: Does not cause skin sensitisation.  
Classification: Does not cause skin sensitisation.
- Aluminum borate oxide : Species: Guinea pig  
Result: Does not cause skin sensitisation.  
Classification: Does not cause skin sensitisation.  
Information given is based on data obtained from similar substances.
- Species: human  
Result: Does not cause respiratory sensitisation.  
Classification: Does not cause respiratory sensitisation.  
Information given is based on data obtained from similar substances.
- Germ cell mutagenicity**
- Inorganic metal oxide : Animal testing did not show any mutagenic effects. Did not cause genetic damage in cultured mammalian cells.
- Aluminum borate oxide : Did not cause genetic damage in cultured bacterial cells. Information given is based on data obtained from similar substances.  
(Al18(BO3)4O21)
- Carcinogenicity**
- Inorganic metal oxide : Not classifiable as a human carcinogen.  
Overall weight of evidence indicates that the substance is not carcinogenic.

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**Reproductive toxicity**

Inorganic metal oxide : Reproductive toxicity: No toxicity to reproduction  
 Animal testing showed no reproductive toxicity.  
 Information given is based on data obtained from similar substances.  
 Teratogenicity: Animal testing showed no developmental toxicity.  
 Information given is based on data obtained from similar substances.

**Specific Target Organ Toxicity**

Specific target organ toxicity - single exposure

Inorganic metal oxide : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Aluminum borate oxide : The substance or mixture is not classified as specific target organ toxicant, single exposure.  
 (Al<sub>18</sub>(BO<sub>3</sub>)<sub>4</sub>O<sub>21</sub>)

Specific target organ toxicity - repeated exposure

Inorganic metal oxide : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Aspiration hazard**

Inorganic metal oxide : No aspiration toxicity classification

Aluminum borate oxide : No aspiration toxicity classification  
 (Al<sub>18</sub>(BO<sub>3</sub>)<sub>4</sub>O<sub>21</sub>)

**Other**

Tflex™ CR350S : No data is available on the product itself.

**Section 12 - Ecological Information****Ecotoxicity effects**

Acute and prolonged toxicity to fish

Inorganic metal oxide : LC50/96 h/Pimephales promelas (fathead minnow)  
 Aquatic toxicity is unlikely due to low solubility., Information given is based on data obtained from similar substances.

Toxicity to aquatic plants

Inorganic metal oxide : EC50/72 h/Pseudokirchneriella subcapitata (green algae)  
 Method: OECD Test Guideline 201  
 Aquatic toxicity is unlikely due to low solubility., Information given is based on data obtained from similar substances.  
 NOEC/72 h/Pseudokirchneriella subcapitata (green algae)  
 Method: OECD Test Guideline 201  
 Aquatic toxicity is unlikely due to low solubility.

Acute toxicity to aquatic invertebrates

Inorganic metal oxide : LC50/48 h/Ceriodaphnia dubia (water flea)  
 Aquatic toxicity is unlikely due to low solubility., Information given is based on data obtained from similar substances.

**Persistence and degradability**

No information available.



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### **Bioaccumulation**

- Inorganic metal oxide : The substance has the potential to bioaccumulate. Information given is based on data obtained from similar substances.
- Aluminum borate oxide (Al<sub>18</sub>(BO<sub>3</sub>)<sub>4</sub>O<sub>21</sub>) : Not applicable

### **Mobility in soil**

No information available.

### **Other adverse effects**

Tflex™ CR350S : No data is available on the product itself.

## **Section 13 - Waste Disposal**

- Waste disposal methods** : Dispose of in accordance with local regulations. This material and its container must be disposed of in a safe way. Dispose of contents/container to an approved waste disposal plant in accordance with local, regional and national legislations. The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
- Contaminated packaging** : Since empty containers retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## **Section 14 - Transport Information**

Not classified as dangerous in the meaning of transport regulations.

### **China Dangerous Goods Regulation**

- UN number : Not applicable
- Proper shipping name : Not applicable
- Class : Not applicable
- Packing group : Not applicable

### **IMDG**

- UN number : Not applicable
- UN proper shipping name : Not applicable
- Transport hazard class : Not applicable
- Packing group : Not applicable
- Marine pollutant : Not applicable

### **IATA**

- UN number : Not applicable
- UN proper shipping name : Not applicable
- Transport hazard class : Not applicable
- Packing group : Not applicable

Matters needing attention for transportation : Not applicable

## **Section 15 - Regulatory Information**

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not regulated

### **Section 16 - Other Information**

#### **References**

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For research use only.

Significant change from previous version is denoted with a double bar.

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