SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product Identifier: FK506 (Tacrolimus)
Product Number: F001
CAS Number: [109581-93-3]
EC Number: No Data Available

1.2 Relevant identified uses of the substance or mixture and uses advised against
Recommended Use: Immunosuppressant research.
Restrictions of Use: Not for human or animal use

1.3 Details of the supplier of the safety data sheet
Distributor Name: TOKU-E Company
Distributor Address: 715 W Orchard Dr. Suite 3
Bellingham, WA 98225
Phone Number: (360)734-1789
E-mail Address: info@toku-e.com
Safety Data Sheet Issued by: TOKU-E Company (USA)

1.4 Emergency telephone number
Emergency Phone Number (International): +1 (352) 353-3500
Emergency Phone Number (US Only): 1 (800) 535-5053

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification: Acute toxicity, oral (Category 3)
(Please refer to Section 16 for regulatory information)

2.2 Label elements, including precautionary statements
GHS Label Elements:

![Signal Word: Danger]

Hazard Statements:
H301 Toxic if swallowed
Precautionary Statements

P264 Wash hands/skin thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P321 Specific treatment, see applicable response statements on this label.
P330
P405
P501 Dispose of contents/container in accordance with governmental regulation.

2.3 Other hazards which do not result in classification
Hazards not otherwise classified (HNOC) by GHS No Data Available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonym(s) FR900506, Tacrolimus hydrate
Formula $\text{C}_{44}\text{H}_{69}\text{NO}_{12}$
Molecular Weight 804.02
CAS Number [109581-93-3]
EC Number No Data Available
Hazardous Ingredients FK506 (Tacrolimus)
Acute toxicity, oral (Category 3)

SECTION 4: FIRST-AID MEASURES

4.1 Description of first-aid measures

General Advice Consult a doctor/physician if exposed - additional medical care may be required. Show this Safety Data Sheet to the medical provider.

If Inhaled If inhaled, move to fresh air. If not breathing, give artificial respiration and immediately call local emergency telephone number.

In Case of Skin Contact Wash skin thoroughly with soap and water.

In Case of Eye Contact Flush eye with water. After initial flush, remove any contact lenses and continue flushing for at least 15 minutes.

If Swallowed Rinse mouth with water. Immediately call a doctor, physician, or poison control center. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms/effects, acute and delayed
Specific Treatment Please see Section 2 and Section 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No Data Available.

SECTION 5: FIRE-FIGHTING MEASURES

Do not eat, drink, or smoke when using this product.
Wash hands/skin thoroughly after handling.
Dispose of contents/container in accordance with governmental regulation.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Rinse mouth.
5.1 Extinguishing media
Suitable Extinguishing Media
Water spray, alcohol-resistant foam, dry chemical, carbon dioxide

5.2 Special hazards arising from the substance or mixture
Hazardous Combustion Products
Formed under fire conditions: carbon and nitrogen oxides, carbon monoxide, hydrogen peroxide

5.3 Advice for firefighters
Special Protective Equipment for Firefighters
Wear self-contained breathing apparatus

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
General
Evacuate personnel to a safe location. Use appropriate personal protective equipment while in contact with product. Avoid dust formation. Ensure adequate ventilation.

Personal Precautions
Prevent contamination of skin, eyes and clothing with appropriate protective equipment (Section 8). Wear respiratory protection.

6.2 Environmental precautions
General
Recover waste, if possible, and place in suitable closed container for licensed disposal. Prevent spillage - do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
The recommended course of action is to treat any incident that involves the spill/release of a chemical substance as if it were hazardous in nature until the appropriate personnel have been consulted. Wear personal protective equipment as necessary. If accessible, use a spill kit. For powder spills, avoid generating dust during cleanup.

6.4 Reference to other sections
Refer to section 8 for exposure control.
Refer to section 13 for disposal information.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
Wear appropriate protective clothing/gear to prevent contact with skin and eyes. Provide exhaust ventilation or respiratory protection in areas where dust is formed.

7.2 Conditions for safe storage, including any incompatibilities
Store in a tightly closed container. Protect from humidity.

Incompatibilities

No Data Available

7.3 Specific end use(s)

Refer to section 1.2

SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

Contains no substance/substances with occupational exposure limit values

OSHA Permissible Exposure Limits

No Data Available

NIOSH Recommended Exposure Limits

No Data Available

ACGIH Threshold Limit Values

No Data Available

8.2 Exposure controls

PPE: Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

PPE: Hand Protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal techniques to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices, and wash and dry hands

PPE: Eye Protection

Use a face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU)

PPE: Skin and Body Protection

Handle with gloves. Wear protective clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place. When deemed needed according to the concentration and amount of this product, use a complete body suit

SECTION 9: PHYSICAL/CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

White powder

Odor

No Data Available

Odor Threshold

No Data Available

pH

No Data Available
Melting Point/Freezing Point: No Data Available
Initial Boiling Point and Range: No Data Available
Flash Point: No Data Available
Evaporation rate: No Data Available
Flammability (solid, gas): No Data Available
Upper Flammability/Explosion Limit: No Data Available
Lower Flammability/Explosion Limit: No Data Available
Vapor Pressure: No Data Available
Vapor Density: No Data Available
Relative Density: No Data Available
Water Solubility: No Data Available
Solubility in Other Solvents: No Data Available
Partition Coefficient: n-octanol/water: No Data Available
Auto-Ignition Temperature: No Data Available
Decomposition Temperature: No Data Available
Viscosity: No Data Available
Explosive Properties: No Data Available
Oxidizing Properties: No Data Available
Optical Rotation: No Data Available
Absorbance (290nm, 5% in H₂O): No Data Available
Water Content (Loss on Drying): Not more than 3.0%

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No Data Available
10.2 Chemical stability: Stable under recommended storage conditions
10.3 Possibility of hazardous reactions: No Data Available
10.4 Conditions to avoid: No Data Available
10.5 Incompatible materials: Strong oxidizing agents
10.6 Hazardous decomposition products: Formed under fire conditions: carbon and nitrogen oxides, carbon monoxide, hydrogen peroxide

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Oral LD₅₀: Rat: 134 mg/kg
Inhalation LC₅₀: No Data Available
Dermal LD₅₀: No Data Available
Intraperitoneal LD₅₀: No Data Available
Intravenous LD₅₀: Rat: 23600 ug/kg

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Subcutaneous LD$_{50}$: No Data Available
Skin Corrosion/Irritation: No Data Available
Serious Eye Damage/ Eye Irritation: No Data Available
Respiratory or Skin Sensitization: No Data Available
Germ Cell Mutagenicity: No Data Available
Carcinogenicity: This substance has not been identified as a potential carcinogen within the National Toxicology Program Report on Carcinogens or within the International Agency for Research on Cancer Monograph.

Reproductive Toxicity: No Data Available
Specific Target Organ Toxicity: Single Exposure (GHS): No Data Available
Specific Target Organ Toxicity: Repeated Exposure (GHS): No Data Available
Aspiration Hazard: No Data Available
Potential Health Effects: See Section 2, Hazard(s) Identification
Signs and Symptoms of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated
Synergistic Effects: No Data Available
Additional Information: No Data Available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity: No Data Available
12.2 Persistence and degradability: No Data Available
12.3 Bioaccumulative potential: No Data Available
12.4 Mobility in Soil: No Data Available
12.5 PBT and vPvB assessment: No Data Available
12.6 Other adverse effects: No Data Available

In the absence of complete ecological information, treat product as environmentally hazardous. Use proper storage, handling, and disposal to prevent unintentional release into the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Dispose unused/spoiled product in accordance with local and federal regulations. Sewering is not an acceptable form of waste disposal.
Product: Dispose of product through a licensed disposal company.
Contaminated Packaging: Dispose of as unused product.
**SECTION 14: TRANSPORTATION INFORMATION**

DOT (US)  
UN Number: 2811 Class 6.1, Packing group III  
Proper shipping name: Toxic solids, organic, n.o.s. (FK506)  
Marine pollutant: No  
Poison inhalation hazard: no

IMDG  
UN Number: 2811 Class 6.1, Packing group III  
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (FK506)  
EMS-no. F-A, S-A  
Marine pollutant: No

IATA  
UN Number: 2811 Class 6.1, Packing group III  
Proper shipping name: Toxic solid, organic, n.o.s. (FK506)

**SECTION 15: REGULATORY INFORMATION**

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

Section 2/3: Hazards identification/labelling in accordance with OSHA 29 CFR 1910.1200

SARA 302 Components  
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components  
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 313.

SARA 311/312 Hazards  
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 311/312

Massachusetts Right to Know  
No components are subject to the Massachusetts Right to Know Act

Pennsylvania Right to Know  
No components are subject to the Pennsylvania Right to Know Act

New Jersey Right to Know  
No components are subject to the New Jersey Right to Know Act

California Prop. 65 Components  
No  
This product does not contain any chemicals known to the State of California to cause birth defects, cancer, or any other reproductive harm

EU Information  
SDS in accordance with Regulation (EC) 1907/2006
EC Number No Data Available
CAS Number [109581-93-3]
Name: FK506 (Tacrolimus)
Envisaged Registration Deadline: No Data Available
Information under Section 2, Hazard Identification, classification and labelling in accordance with Regulation (EC) 1272/2008
Information under Section 3, Hazardous components according to Regulation (EC) No 1272/2008

15.2 Chemical safety assessment

EU Information

For this product a chemical safety assessment was not carried out

16. OTHER INFORMATION

Revision Date: 2017-08-11

This safety data sheet represents TOKU-E Company’s current understanding of the hazards associated with this product. The stated hazard information is based on existing experimental data and is not guaranteed to be all-inclusive. TOKU-E Company strives to maintain current and comprehensive safety information but recognizes that this safety data sheet may require revision as new information becomes available. TOKU-E Company shall not be held liable for damage or injury resulting from contact, handling, or storage of this product.