



## MATERIAL SAFETY DATA SHEET (MSDS)

Version 3.11

Revision Date 1/30/2019

Print Date 1/30/2019

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

Product name: trans-4-Hydroxytamoxifen  
Product Catalogue Number: 540203  
Brand: MedKoo Biosciences  
CAS-No: 68047-06-3

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Synthesis of substances.

#### 1.3 Details of the supplier of the safety data sheet

Company: MedKoo Biosciences, Inc.  
2500 Gateway Centre Blvd. Suite 400, Morrisville, NC 27560, USA  
Telephone: 919-636-5577  
Fax: 919-980-4831

#### 1.4 Emergency telephone number

Emergency Phone # 911 (in USA) or local emergency phone#

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Acute Toxicity: Inhalation, Category 4  
Acute Toxicity: Oral, Category 4  
Acute Toxicity: Skin, Category 4  
Toxic To Reproduction, Category 2

#### 2.2 GHS Label elements, including precautionary statements

Pictogram:



**Signal word:**

Warning

**GHS Hazard Phrases:**

H302: Harmful if swallowed.  
H312: Harmful in contact with skin.  
H332: Harmful if inhaled.  
H361: Suspected of damaging fertility or the unborn child.

**GHS Precaution Phrases:**

P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P261: Avoid breathing {dust/fume/gas/mist/vapors/spray}.  
P264: Wash skin thoroughly after handling.  
P280: Wear protective gloves/ eye protection/ face protection.

**GHS Response Phrases:**

P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWA  
Rinse r

P312: Call a POISON CENTER or doctor/physician if you feel unwell.  
P321: Specific treatment (see supplemental first aid instructions on this label).  
P330: Rinse mouth.  
P362+364: Take off contaminated clothing and wash it before reuse.

**GHS Storage and Disposal Phrases:** Please refer to Section 7 for Storage and Section 13 for Disposal information.

**Adverse Human Health** Harmful if inhaled, swallowed, or in contact with skin.

**Effects and Symptoms:** Material may be irritating to the mucous membranes and upper respiratory tract.  
May cause eye, skin, or respiratory system irritation.  
Suspected of damaging fertility or the unborn child.  
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Synonyms: (Z)-4-Hydroxytamoxifen; trans-4-Hydroxytamoxifen; ICI 79280; ICI79280; ICI-79280  
Formula:  $C_{26}H_{29}NO_2$   
Molecular weight: 387.52  
CAS-No: 68047-06-3

#### Hazardous components

Component	Classification	Concentration
trans-4-Hydroxytamoxifen	Skin Irrit. 2; Eye Dam. 1; Resp. Sens. 1; Skin Sens. 1; Muta. 2; Repr. 2; STOT SE 3; Aquatic Chronic 4; H315, H317, H318, H334, H335, H341, H361, H413	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

##### If inhaled

Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel.  
Get immediate medical attention.

##### In case of skin contact

Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

##### In case of eye contact

Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel

##### If swallowed

Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

#### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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### 5. FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

Use water spray to cool fire-exposed containers.

#### **Unsuitable Extinguishing Media**

A solid water stream may be inefficient.

### **5.2 Special hazards arising from the substance or mixture**

No data available

### **5.3 Advice for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

### **5.4 Further information**

No data available

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## **6. ACCIDENTAL RELEASE MEASURES**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid raising and breathing dust, and provide adequate ventilation.

As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

### **6.2 Environmental precautions**

Take steps to avoid release into the environment, if safe to do so.

### **6.3 Methods and materials for containment and cleaning up**

Contain spill and collect, as appropriate.

Transfer to a chemical waste container for disposal in accordance with local regulations.

### **6.4 Reference to other sections**

For disposal see section 13.

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## **7. HANDLING AND STORAGE**

### **7.1 Precautions for safe handling**

Avoid breathing dust/fume/gas/mist/vapours/spray.

Avoid prolonged or repeated exposure.

### **7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C for short term (weeks to 3 months) or -20°C for long term (3 months to years).

Keep in a dry place.

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 Control parameters**

#### **Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
trans-4-Hydroxytamoxifen	68047-06-3	N/A	N/A	N/A

### **8.2 Exposure controls**

#### **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### **Personal protective equipment**

##### **Eye/face protection**

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).

##### **Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### **Full contact**

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### **Splash contact**

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

#### **Data source**

KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### **Body Protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### **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).

#### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties**

a) Appearance Form:	Color: N/A Form: crystalline solid powder
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	No data available
n) Water solubility	~0.3 mg/ml in a 1:2 solution of EtOH:PBS (pH 7.2); ~20 mg/ml in EtOH & DMF; ~2 mg/ml in DMSO;

o) Partition coefficient: noctanol/ water	log Pow: > 99
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

## 9.2 Other safety information

No data available

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## 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:** Polymerization will not occur

**10.4 Conditions to avoid:** No data available

**10.5 Incompatible materials:** strong oxidizing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO<sub>x</sub>)

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

The toxicological effects of this product have not been thoroughly studied.

(Z)-4-hydroxy Tamoxifen - Toxicity Data: Subcutaneous TDLO (mouse): 30 ug/kg/3D (intermittent);

Oral TDLO (rat): 3 mg/kg/3D (intermittent); Subcutaneous TDLO (rat): 40 mg/kg/2D (intermittent);

Oral TDLO (mouse): 3500 ug/kg/10W (intermittent);

#### Chronic Toxicological Effects:

(Z)-4-hydroxy Tamoxifen - Investigated as a mutagen and reproductive effector.

Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.

See actual entry in RTECS for complete information.

(Z)-4-hydroxy Tamoxifen RTECS Number:SL1210000

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## 12. ECOLOGICAL INFORMATION

**12.1 Toxicity:** Avoid release into the environment.

Runoff from fire control or dilution water may cause pollution.

**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 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects:** No data available

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Dispose in accordance with local, state, and federal regulations.

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## 14. TRANSPORT INFORMATION

**DOT (US):** Not dangerous goods

**IMDG:** Not dangerous goods

**IATA:** Not dangerous goods

Transport in accordance with local, state, and federal regulations.

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## 15. REGULATORY INFORMATION

This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC)

### 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

Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

Components	CAS-No.	Revision data
trans-4-Hydroxytamoxifen	68047-06-3	N/A

### Pennsylvania Right To Know Components

Components	CAS-No.	Revision data
trans-4-Hydroxytamoxifen	68047-06-3	N/A

### New Jersey Right To Know Components

Components	CAS-No.	Revision data
trans-4-Hydroxytamoxifen	68047-06-3	N/A

### California Prop. 65 Components

Components	CAS-No.	Revision data
trans-4-Hydroxytamoxifen	68047-06-3	N/A

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## 16. OTHER INFORMATION

### Further information

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### Preparation Information

MedKoo Biosciences, Inc.  
Product Safety – multiple Region  
Tel: 919-636-5577

Version: 3.11.

Revision Date: 1/30/2019

Print Date: 1/30/2019

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