

# MATERIAL SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product name:	MTT Cell Proliferation and Cytotoxicity Assay Kit
Catalog Number:	E-CK-A341
Application:	For research use only

## SECTION 2 HAZARDS IDENTIFICATION

### 2.1 HAZARD STATEMENT

Classification according to GHS

#### 2.1.1 MTT

H315: Causes skin irritation.

H319: Causes serious eye irritation

H335: May cause respiratory irritation.

H341: Suspected of causing genetic defects.

#### 2.1.2 DMSO

H227: Combustible liquid.

### 2.2 PRECAUTION STATEMENT

Classification according to GHS

#### 2.2.1 MTT

P202: Do not handle until all safety precautions have been read and understood .

P261: Avoid breathing dust.

P264: Wash skin thoroughly after handling.

P271: Use only outdoor or in a well-ventilated area.

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you fell unwell.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313: IF exposed or concerned: Get medical advice/attention.

P332 + P313: IF skin irritation occurs: Get medical advice/ attention.

P337 + P313: IF eye irritation persists: Get medical advice/ attention.

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

P501: Dispose of contents/ container to an approved waste disposal.

#### 2.2.2 DMSO

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P210: Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.

P280: Wear protective gloves/ eye protection/ face protection.

P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P405 + P235: Store in a well-ventilated place. Keep cool.

P501: Dispose of contents/ container to an approved waste disposal plant.

### SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Items	Physical form	Hazardous Ingredient	Concentration	CAS No.
Reagent 1	Odorless, light yellow, liquid	MTT	0.5%	298-93-1
Reagent 2	Odorless and colorless, liquid	Dimethyl sulfoxide (DMSO)	1%	67-68-5

### SECTION 4 FIRST-AID MEASURES

Classification according to GHS

#### 4.1 General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### 4.2 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### 4.3 In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

#### 4.4 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### 4.5 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### SECTION 5 FIRE FIGHTING MEASURES

#### 5.1 Suitable extinguishing media

Suitable: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide or appropriate foam.

For small fires, use media such as "alcohol" foam, dry chemical or carbon dioxide.

For large fires, apply water from as far as possible. Use large quantities of water applied as a mist or spray. Solid streams of water may be ineffective. Cool affected containers with flooding quantities of water.

#### 5.2 Special precautions for fire-fighters

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

#### 5.3 Special hazards arising from the substance or mixture

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Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides, Hydrogen chloride gas.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### 6.1 Person-related safety precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

### 6.2 Measures for environmental protection

Prevent further leakage or spillage if safe to do so. Do not let enter drains. Discharge into the environment must be avoided.

### 6.3 Measures for containment and cleaning

Contain spillage, and then collect with non-combustible absorbent material (eg. sand, diatomaceous earth, vermiculite). Place in a container for disposal according to local regulations. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

## SECTION 7 HANDLING AND STORAGE

### 7.1 Handling

Wear appropriate protective clothing and safety gloves.

Avoid inhalation.

Avoid contact with eyes, skin and clothing.

Mechanical exhaust required.

Keep away from ignition sources, heat and flame.

No smoking at working site.

Incompatibilities: Strong oxidizing agents, Strong acids. Handling and unloading should be light, to prevent packaging broken, damp and cause losses.

Working place should be equipped with appropriate varieties and quantities of fire fighting equipment and leakage emergency treatment equipment.

### 7.2 Storage

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

Keep away from heat, sparks and flame.

Keep away from sources of ignition.

Incompatible: Strong oxidizing agents, Strong acids.

Storage place should be equipped with appropriate varieties and quantities of fire fighting equipment and leakage emergency treatment equipment.

## SECTION 8 EXPOSURE CONTROL/PPE

### 8.1 Engineering Controls

Mechanical exhaust required. Safety shower and eye bath.

## 8.2 Personal Protective Equipment

Respiratory: Government approved respirator if needed.

Eye/face: Chemical safety goggles if needed.

Clothing: Wear appropriate protective clothing.

Hand/skin: Protective 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.

Body protection: Wear suitable protective clothing according to the concentration and amount of the substance at the workplace.

## 8.3 Other Protect

No smoking, drinking and eating at working site. Wash thoroughly after handling.

# SECTION 9 PHYSICAL/CHEMICAL PROPERTIES

## 9.1 MTT

- a) Appearance: Powder
- b) Color: Dark yellow
- c) Odor: No data available
- d) Melting point/freezing point: 195°C
- e) Initial boiling point and boiling range: No data available
- f) Flammability (solid, gas): No data available
- g) Upper/lower flammability or explosive limits: No data available
- h) Flash point: Not applicable
- i) Autoignition temperature: No data available
- j) Decomposition temperature: No data available
- k) pH: No data available
- l) Viscosity: No data available
- m) Water solubility: No data available
- n) Partition coefficient: n-octanol/water: No data available
- o) Vapor pressure: No data available
- p) Density: No data available
- q) Relative vapor density: No data available
- r) Particle characteristics: No data available
- s) Explosive properties: No data available
- t) Oxidizing properties: None

## 9.2 DMSO

- a) Physical state: Liquid
- b) Color: Clear
- c) Odor: Odorless
- d) Melting point/freezing point: Melting point: 18.5°C at 1013 hPa
- e) Initial boiling point and boiling range: 189°C at 1013 hPa
- f) Flammability (solid, gas): No data available
- g) Upper/lower flammability or explosive limits: Upper explosion limit: 28.5%(V)

Lower explosion limit: 2.6%(V)

h) Flash point: 85°C – closed cup

i) Autoignition temperature: 300-302°C at 1013 hPa

j) Decomposition temperature: >190°C

k) pH: No data available

l) Viscosity: Viscosity, kinematic: No data available

Viscosity, dynamic: 2.14 mPa.s at 20°C

m) Water solubility: Completely miscible

n) Partition coefficient: n-octanol/water: log pow: -1.35 at 20°C – Bioaccumulation is not expected

o) Vapor pressure: 0.55 hPa at 20°C

p) Density: 1.1 g/cm<sup>3</sup> at 20°C

q) Relative vapor density: No data available

r) Particle characteristics: No data available

s) Explosive properties: No data available

t) Oxidizing properties: None.

## 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

Heat, flames and sparks

### 10.5 Incompatible materials

Strong oxidizing agent, Light sensitive, Alcohols, Organic materials, Heavy metals, Powdered metals, Strong reducing agents, Amines, Mercaptans.

### 10.6 Hazardous decomposition products

Other decomposition products: No data available

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Sulphur oxides, Hydrogen chloride gas.

## SECTION 11 TOXICOLOGICAL INFORMATION

### 11.1 MTT

#### Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: 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

In vitro tests showed mutagenic effects

Test Type: *S. typhimurium*

Result: positive

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: XF8060000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Quantitative data on the toxicity of this product are not available.

Further toxicological data: Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Further data: Handle in accordance with good industrial hygiene and safety practice

## 11.2 DMSO

Acute toxicity

LD50 Oral – Rat – male and female – 28300 mg/kg

(OECD Test Guideline 401)

LC0 Inhalation - Rat – male and female – 4h - >5.33 mg/l – dust/mist

(OECD Test Guideline 403)

LD50 Dermal – Rat – Male and female – 40000 mg/kg

Remarks: (ECHA)

Skin corrosion/irritation

Skin – Rabbit

Result: slight irritation – 4h

(OECD Test Guideline 404).

Serious eye damage/eye irritation

Eyes – Rabbit

Result: Slight irritation – 24h

(OECD Test Guideline 405)

Respiratory or skin sensitization

Maximizatino Test – Guinea pig

Result: negative

(OECD Test Guideline 406)

Local lymph node assay (LLNA) – Mouse

Result: negative

(OECD Test Guideline 429)

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 479

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)

Species: Rat

Application Route: Intraperitoneal

Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 18 Months - NOAEL (No observed adverse effect level) - 3,300

mg/kg - LOAEL (Lowest observed adverse effect level) - 9,900

mg/kg

Repeated dose toxicity - Monkey - male and female - Dermal - 18 Months - NOAEL (No observed adverse effect level) - >=

8,910 mg/kg - LOAEL (Lowest observed adverse effect

level) - 990 mg/kg

Exposure to large amounts can cause: redness of skin, Itching, burning, sedation,

Headache, Nausea, Dizziness

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To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## SECTION 12 ECOLOGICAL INFORMATION

### 12.1 MTT

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

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

Endocrine disrupting properties

No data available

Other adverse effects

No data available.

### 12.2 DMSO

Toxicity

Toxicity to fish: static test LC50 - Danio rerio (zebra fish) - > 25,000 mg/l - 96 h

(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Daphnia magna (Water flea) - 24,600 mg/l - 48 h

(OECD Test Guideline 202)

Toxicity to algae: static test ErC50 - Pseudokirchneriella subcapitata (green algae) -

17,000 mg/l - 72 h

(OECD Test Guideline 201)

Toxicity to bacteria: EC50 - activated sludge - 10 - 100 mg/l - 30 min (ISO 8192)

Persistence and degradability

Biodegradability: aerobic - Exposure time 28 d

Result: 31 % - Not readily biodegradable.

(OECD Test Guideline 301D)

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

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

Endocrine disrupting properties

No data available

Other adverse effects

Stability in water: - 0.12 - 1.2 h at 30 °C pH 7

Remarks: Hydrolyzes readily.

## SECTION 13 DISPOSAL CONSIDERATION

### 13.1 Disposal methods

Dispose of waste in accordance with applicable national, regional, or local regulations. Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

### 13.2 Contaminated packaging

Dispose in the same manner as unused product.

## SECTION 14 TRANSPORT INFORMATION

**RID/ADR:** Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

**IATA:** Non-Hazardous for Air Transport.

**IMO:** Non-Hazardous for Sea Transport.

## SECTION 15 REGULATORY INFORMATION

This material safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008 and its amendments.

## SECTION 16 OTHER INFORMATION

**IMPORTANT! Read the safety data sheets before the use and disposal of this product. Insure that this information is understood by the operators exposed to this product. Use this product for the intended purpose as indicated in the instruction manual.**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from this use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising from using the above information.