MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product name:	Caspase 4 Activity Detection Substrate for Flow Cytometry
Catalog Number:	E-CK-A484
Application:	For research use only

SECTION 2 HAZARDS IDENTIFICATION

2.1 GHS Classification

Skin Corrosion/Irritation - Category 2

Eye Irritation - Category 2A

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

2.2 GHS Label elements, including precautionary statements

Pictogram:

Signal Word: Warning

H315: Causes skin irritation.

H319: Causes serious eye irritation.

Precautionary Statements

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.

P403 + P235 Store in a well-ventilated place. Keep cool.

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

2.3 Other hazards: none.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Items	Physical form	Hazardous Ingredient	Concentration	CAS No.
E-CK-A484	Odorless and colorless, liquid	Dimethyl sulfoxide (DMSO)	5%	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

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/CHEMIICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Physical state clear, liquid

b) Color clear

c) Odor odorless

d) Melting point/freezing point: Melting point/range: 16-19 °C

e) Initial boiling point and boiling range: 189 °C

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 87 °C-closed cup-ASTM D 93

i) Autoignition temperature: 300-302 °C at 1,013 hPa

j) Decomposition temperature> 190 °C

k) pH Not applicable

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/mL

Relative density No data available

q) Relative vapor density: No data available

r) Particle characteristics: No data available

s) Explosive properties: Not classified as explosive.

t) Oxidizing properties none

9.2 Other safety information

Surface tension 43.5 mN/m at 20 °C

Dissociation constant 35.1

Relative vapor density: 2.70-(Air = 1.0).

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

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 (NOx), Sulphur oxides, Hydrogen chloride gas.

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral-Rat-male and female-28,300 mg/kg

(OECD Test Guideline 401)

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

(OECD Test Guideline 403)

LD50 Dermal-Rat-male and female-40,000 mg/kg

Remarks: (ECHA)

Skin corrosion/irritation

Skin-Rabbit

Result: slight irritation-4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes-Rabbit

Result: slight irritation-24 h

(OECD Test Guideline 405)

Respiratory or skin sensitization

Maximization 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
Result: negative
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

11.2 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
RTECS: PV6210000
Exposure to large amounts can cause:, redness of skin, Itching, burning, sedation, Headache, Nausea, Dizziness
To the best of our knowledge, the chemical, physical, and toxicological properties have notbeen thoroughly investigated.

SECTION 12 ECOLOGICAL INFORMATION

12.1 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)

12.2 Persistence and degradability

Biodegradability aerobic-Exposure time 28 d

Result: 31 %-Not readily biodegradable.(OECD Test Guideline 301D)

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 Endocrine disrupting properties: No data available

12.7 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 to 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.