Z-VAD-FMK: sc-3067

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Z-VAD-FMK
CATALOG CODE: sc-3067
SYNONYMS: Caspase family inhibitor (fluoromethylketone)

SUPPLIER: Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, CA 95060
800.457.3801 or 831.457.3800

EMERGENCY: ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255 (1-800-CHEMCALL) or call +613 9573 3112

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	*Description*	*CAS#*	*Safety Information*
Z-VAD-FMK	0.5 mg/0.1 ml in DMSO	187389-52-2	See below
Z-Val-Ala-Asp(OMe)-FMK (FMK, fluoromethyl ketone)	-	-	See blow

Note: The safety data shown below is based on pure ingredients: The amount in this kit comprises much less.

SECTION 3:HAZARDS IDENTIFICATION

Formula:	*CAS #*	*EC #*	*MW*	*Chemical Formula*
DMSO	67-68-5	200-664-3	78.13	C2H6OS

DMSO:
Emergency Overview
OSHA Hazards:
Combustible Liquid, Target Organ Effect
Target Organs:
Eyes, Skin
GHS Classification:
Flammable liquids (Category 4)
GHS Label elements, including precautionary statements
Pictogram none
Signal word Warning
Hazard statement(s):
H227 Combustible liquid
Precautionary statement(s):
none
HMIS Classification
Health hazard: 0
Chronic Health Hazard: *
Flammability: 2
Physical hazards: 0
NFPA Rating
Health hazard: 0
Fire: 2
Reactivity Hazard: 0

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be harmful if swallowed.

Aggravated Medical Condition: Avoid contact w/DMSO solutions containing toxic materials or materials with unknown toxicological properties. DMSO is readily absorbed through skin and may carry such materials into the body.

SECTION 4: 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: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact: Wash off with soap and plenty of water. Consult a physician.
In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
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

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for fire-fighters: Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products: Hazardous decomposition products formed under fire conditions— carbon oxides, sulfur oxides.
Further information: Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid breathing vapors, mist or gas. Avoid dust formation. Ensure adequate ventilation.
Environmental precautions: Do not let product enter drains.
Methods for cleaning up: Sweep up and keep in suitable, closed containers for disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Keep away from sources of ignition—no smoking. Take measures to prevent the build up electrostatic charge.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: -20 °C

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.
Personal protective equipment
Respiratory protection
Respiratory protection is not required. Where protection is desired, use multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Hand protection
For prolonged or repeated contact use protective gloves.
Eye protection
Chemical safety goggles
Hygiene measures
General industrial hygiene practice.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

DMSO

Appearance	Liquid	pH	Not available
Water Solubility	Completely miscible	Specific Gravity (g/ml)	1.1
Boiling Point (°C)	189	Melting Point (°C)	18.4
Flash Point (°C)	87	Ignition Temperature (°C)	301

Z-VAD-FMK

Appearance	Liquid	Molecular Weight	467.49
Molecular Formula	C22H30FN3O7		

SECTION 10: STABILITY AND REACTIVITY

Property DMSO

Chemical stability: Stable under recommended storage conditions

Conditions to avoid: Not available

Materials to avoid: Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents

Hazardous decomposition products: Carbon oxides, sulfur oxides

SECTION 11: TOXICOLOGICAL INFORMATION

DMSO

Acute toxicity:

LD50 Oral - rat - 14,500 mg/kg

LC50 Inhalation - rat - 4 h - 40250 ppm

LD50 Dermal - rabbit - > 5,000 mg/kg

Irritation and corrosion:

Skin - rabbit - Mild skin irritation - 24 h

Eyes - rabbit - Mild eye irritation

Sensitisation

no data available

Chronic exposure

Carcinogenicty: rat - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria.

Skin and Appendages:

Other: Tumors.

Carcinogenicty: mouse - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria.

Leukaemia Skin and Appendages:

Other: Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Genotoxicity in vitro - mouse – lymphocyte; Cytogenetic analysis

Genotoxicity in vitro - mouse – lymphocyte; Mutation in mammalian somatic cells.

Genotoxicity in vivo - rat – Intraperitoneal; Cytogenetic analysis

Genotoxicity in vivo - mouse – Intraperitoneal; DNA damage

Developmental Toxicity - mouse – Intraperitoneal; Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Specific Developmental Abnormalities: Musculoskeletal system; Reproductive toxicity - rat – Intraperitoneal; Effects on Fertility: Abortion.

Reproductive toxicity: rat – Intraperitoneal; Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity - rat – Subcutaneous; Effects on Fertility: Post-implantation mortality (e.g., dead

and/or resorbed implants per total number of implants).; Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Reproductive toxicity - mouse – Oral; Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).
Specific Developmental Abnormalities: Musculoskeletal system.

Additional Information:
RTECS: PV6210000

SECTION 12: ECOLOGICAL INFORMATION

DMSO
Elimination information (persistence and degradability): no data available
Ecotoxicity effects: Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h; LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h; Toxicity to daphnia and other aquatic invertebrates; EC50 - Daphnia pulex (Water flea) - 27,500 mg/l
Toxicity to algae EC50 - Lepomis macrochirus (Bluegill) - > 400,000 mg/l - 96 h
Further information on ecology: no data available

SECTION 13: DISPOSAL CONSIDERATIONS

Product: Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DMSO
DOT (US):
UN-Number: 1993 Class: CBL Packing group: III
Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide)
Marine pollutant: No
Poison Inhalation Hazard: No
IMDG:
Not dangerous goods
IATA:
Not dangerous goods

SECTION 15: REGULATORY INFORMATION

DMSO
OSHA Hazards: Combustible Liquid, Target Organ Effect
DSL Status: All components of this product are on the Canadian DSL list.
SARA 302 Components:
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components:
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards:
Fire Hazard, Chronic Health Hazard
Massachusetts Right To Know Components:
No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right To Know Components
Dimethyl sulfoxide CAS-No. 67-68-5

New Jersey Right To Know Components:
Dimethyl sulfoxide CAS-No. 67-68-5

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: OTHER INFORMATION

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

7/25/2012