46117 Landing Parkway, Fremont, CA 94538 U.S.A.
Tel: 1-510-265-1027; Fax: 1-510-265-1352

btinfo@biotium.com
http://www.biotium.com/

SAFETY DATA SHEET

Date: February 22, 2022

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Cell Lysis/Assay Buffer
Catalog Number: 99920/99921/99922
Unit Size: 1 mL/10 mL/100 mL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: http://www.biotium.com

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION

GHS classification
Signal word Danger
Health hazards None
Physical hazards
Flam. Liq. 2
Hazard statements
H225 Highly Flammable liquid and vapour.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+ P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P370+P378 In case of fire: Use carbon dioxide, dry chemical extinguishers, foam extinguishers or water for extinction.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container to hazardous waste.

GHS hazard pictogram

WHMIS classification
Flammable liquids - Category 2
Serious eye damage/eye irritation- Category 2B
Signal word Danger
WHMIS hazard pictogram

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NFPA Rating
Health hazard: 2
Fire: 3
Reactivity Hazard: 0

Classification according to Regulation (EC) No 1272/2008[CLP]
Flam. Liq. 2

Labelling according to Regulation (EC) No 1272/2008[CLP]

Hazard pictogram

Signal word
Danger
Hazard statements
H225 Highly Flammable liquid and vapour

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+ P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P370+P378 In case of fire: Use carbon dioxide, dry chemical extinguishers, foam extinguishers or water for extinction.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container to hazardous waste.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Weight **%**	Classification
Ethanol	64-17-5	200-578-6	1%	Flammable Liq. Cat. 2, Eye Irrit. Cat. 2B
Glycerol	56-81-5	200-289-5	20%	Not Classified

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
Flush eyes with water as a precaution.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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5. FIREFIGHTING MEASURES

Suitable extinguishing media
Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.
Special protective equipment for firefighters
Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Avoid breathing vapors, mist or gas. Remove all sources of ignition.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up
Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapor or mist.
Avoid direct contact with substance.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Store at -20 °C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters
Substance: Ethanol
CAS no. 64-17-5

Country	Australia	Austria	Belgium	Canada	Denmark	Finland	France
Limit value,8hours	1000 ppm, 1880 mg/m^3	1000 ppm, 1900 mg/m^3	1000 ppm, 1907 mg/m^3	1000 ppm, 1880 mg/m^3	1000 ppm, 1900 mg/m^3	1000 ppm, 1900 mg/m^3	1000 ppm, 1900 mg/m^3
Limit value, short term	--	2000 ppm, 3800 mg/m^3	--	1,000 ppm	2000 ppm, 3800 mg/m^3	1300 ppm, 2500 mg/m^3 (1)	5000 ppm, 9500 mg/m^3

Country	Germany	Hungary	Ireland	Latvia	Netherlands	Poland	Romania
Limit value,8hours	200 ppm, 380 mg/m^3	1900 mg/m^3	1000 ppm (1)	1000 ppm (1)	260 mg/m^3	1900 mg/m^3	1000 ppm, 1900 mg/m^3
Limit value, short term	800 ppm, 1520 mg/m^3 (1)	7600 mg/m^3	--	--	1900 mg/m^3	--	5000 ppm, 9500 mg/m^3 (1)

Country	South Korea	Spain	Sweden	Switzerland	United Kingdom	USA-NIOSH	USA-OSHA
Limit value,8hours	1000 ppm, 1900 mg/m^3	--	500 ppm, 1000 mg/m^3	500 ppm, 960 mg/m^3	1000 ppm, 1920 mg/m^3	1000 ppm 1900 mg/m^3	1000 ppm 1900 mg/m^3
Limit value, short term	--	1000 ppm, 1910 mg/m^3	1000 ppm, 1900 mg/m^3 (1)	1000 ppm, 1920 mg/m^3	--	--	--

Remarks:
Finland (1) 15 minutes average value
Germany (1) 15 minutes average value

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Ireland (1) 15 minutes reference period
Romania (1) 15 minutes average value
Sweden (1) 15 minutes average value

Substance: Glycerol
CAS no. 56-81-5

Country	Australia	Belgium	Canada	Finland	France
Limit value,8hours	10 mg/m3	10 mg/m3	10 mg/m3	20 mg/m3	10 mg/m3
Limit value, short term	--	--	--	--	--

Country	Germany	Ireland	New Zealand	Poland	Singapore
Limit value,8hours	200 mg/m3	10 mg/m3	10 mg/m3	10 mg/m3	10 mg/m3
Limit value, short term	400 mg/m3	--	--	--	--

Country	South Korea	Spain	Switzerland	United Kingdom	USA-OSHA
Limit value,8hours	10 mg/m3	10 mg/m3	50 mg/m3 (inhalable aerosol)	10 mg/m3	15 mg/m3 (inhalable dust 5 mg/m3 (respirable dust)
Limit value, short term	--	--	100 mg/m3 (inhalable aerosol)	--	--

Personal protective equipment
Hand 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.
Respiratory protection
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Eye protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Cell Lysis/Assay Buffer
Appearance	Clear liquid
Odor	No data available
Odor threshold	No data available
pH	7.4
Melting point/freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	Water soluble

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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

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
No data available
Conditions to avoid
Heat, flames and sparks.
Materials to avoid
No data available
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50 — Glycerol: 4090 mg/kg 4 hours (mouse)
Ethanol: LD50 Oral - Rat - male and female - 10,470 mg/kg (OECD Test Guideline 401)

Inhalation LC50

Glycerol: >570 gm/m3 1 hour (rat)
Ethanol: LC50 Inhalation - Rat - male and female - 4 h - 124.7 mg/l (OECD Test Guideline 403)

Dermal LD50 — Glycerol: 10,000 mg/kg 4 hours (rabbit)

Other information on acute toxicity — no data available

Skin corrosion/irritation

Ethanol — Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation

Ethanol — Eyes - Rabbit
Result: Causes serious eye irritation.
(OECD Test Guideline 405)

Respiratory or skin sensitization

Ethanol — Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances: Methanol

Germ cell mutagenicity

Ethanol — Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

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Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: dominant lethal test
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 478
Result: Positive results were obtained in some in vivo tests.

Carcinogenicity

Ethanol — IARC: 1 - Group 1: Carcinogenic to humans (ethanol)
NTP: No ingredient 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 on OSHA's list of regulated carcinogens.

Glycerol — 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.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

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

Additional Information

Ethanol — Repeated dose toxicity - Rat - male - Oral - NOAEL (No observed adverse effect level) - 1,730 mg/kg - LOAEL (Lowest observed adverse effect level) - 3,200 mg/kg irritant effects, respiratory paralysis, dizziness, narcosis, inebriation, euphoria, nausea, vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human EvidenceAdditional Information

RTECS: KQ6300000 (Ethanol); MA8050000 (Glycerol)

12. ECOLOGICAL INFORMATION

Toxicity

Ethanol

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Toxicity to fish flow-through test LC50 - Pimephales promelas (fathead minnow) - 15,300 mg/l - 96 h US-EPA)
Toxicity to daphnia and other aquatic invertebrates static test LC50 - Ceriodaphnia dubia (water flea) - 5,012 mg/l – 48 h Remarks: (ECHA)
Toxicity to algae static test ErC50 - Chlorella vulgaris (Fresh water algae) - 275 mg/l

Glycerol
(LC50): >5000 mg/L 24 hours (Goldfish); (LC50): >10000 mg/L 24 hours (Daphnia magna)

Persistence and degradability Ethanol
Biodegradability aerobic - Exposure time 15 d Result: ca.95 % - Readily biodegradable.(OECD Test Guideline 301E)
Biochemical Oxygen Demand (BOD) 930 - 1,670 mg/g
Remarks: (Lit.) Theoretical oxygen demand 2,100 mg/g Remarks: (Lit.)

Bioaccumulative potential Ethanol
Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

Mobility in soil No information available
Results of PBT and vPvB assessment No information available
Other adverse effects No information available
Additional information No information available

13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG Not dangerous goods during transportation
UN number None
UN proper shipping name None
Transport hazard class None
Packing group None
Environmental hazards None
Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code None
Special precaution for user None

15. REGULATION INFORMATION

US Federal Regulations
US Toxic Substances Control Act (TSCA): Active (ethanol)
SARA 302: No chemicals were found
SARA 313: No chemicals were found
SARA 311/312 Hazards: Fire Hazard, Acute Health Hazard, Chronic Health Hazard (ethanol)

WHMIS Hazard Class
Flammable liquids - Category 2
Serious eye damage/eye irritation - Category 2B

16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008
Refer to section 2 and section 3

Prepared by: Regulatory Department
Biotium Inc.
Version no. 6

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Revision date (Initials)	2/22/2022 (ET)
Reason for revision	Added glycerol classifications to section 3 and glycerol workplace exposure limits to section 8. Update Toxicological and Ecological information for ethanol in sections 11 and 12. Update to new document template.

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.

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SAFETY DATA SHEET

Date: February 22, 2022

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ac-DEVD-R110 (Rhodamine 110, bis-(N-Ac-L-aspartyl-L-glutamyl-L-valyl-Laspartic acid amide)) (2 mM)
Catalog Number: 30009-1A/30009-2A/30009-3A
Unit Size: 50 uL/ 500 uL/ 5 mL
Manufacturer/Supplier: Biotium, Inc.
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Web: http://www.biotium.com

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION

GHS classification None
Signal word None
Health hazards None
Physical hazards None
Hazard statements None
Precautionary statements None
GHS hazard pictogram None

WHMIS classification
Flammable liquids - Category 4

NFPA Rating
Health hazard: 0
Fire: 2
Reactivity Hazard: 0

Classification according to Regulation (EC) No 1272/2008[CLP] None
Labeling according to Regulation (EC) No 1272/2008[CLP]
Hazard pictogram None
Signal word None
Hazard statements None
Precautionary statements None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Weight **%**	Classification
DMSO	67-68-5	200-664-3	>99%	NA

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
Flush eyes with water as a precaution.

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

5. FIREFIGHTING MEASURES

Suitable extinguishing media
Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.
Special protective equipment for firefighters
Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Avoid breathing vapors, mist or gas. Remove all sources of ignition.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up
Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapor or mist.
Avoid direct contact with substance.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Store at -20 °C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters
Substance Dimethylsulfoxide
CAS no. 67-68-5

Country	Austria	Denmark	Finland	Germany	Sweden	Switzerland
Limit value,8hours	160 mg/m3	160 mg/m3	50 ppm	160mg/m3	150 mg/m3	160 mg/m3
Limit value, short term	-	320mg/m3	-	320mg/m3	500 mg/m3	320 mg/m3

Personal protective equipment
Hand 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.
Respiratory protection
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Eye protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Ac-DEVD-R110
Appearance	Clear liquid
Odor	No data available
Odor threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	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

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
No data available
Conditions to avoid
Heat, flames and sparks.
Materials to avoid
Light
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity DMSO

Oral LD50 Rat - male and female - 28,300 mg/kg (OECD Test Guideline 401)
Inhalation LC50 Rat - male and female - 4 h - > 5.33 mg/l (OECD Test Guideline 403)
Dermal LD50 Rat - male and female - 40,000 mg/kg Remarks: (ECHA)
Other information on acute toxicity no data available

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

Ames test

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Salmonella typhimurium
Result: negative
sister chromatid exchange assay
Chinese hamster ovary cells
Result: negative
Mutagenicity (mammal cell test): chromosome aberration.
Chinese hamster ovary cells
Result: negative
OECD Test Guideline 474
Rat - male and female
Result: negative

Carcinogenicity

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.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

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

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 not been thoroughly investigated.
Eyes - Eye disease - Based on Human Evidence
Eyes - Eye disease - Based on Human Evidence

RTECS: PV6210000 (DMSO)

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12. ECOLOGICAL INFORMATION

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 No information available
Bioaccumulative potential aerobic - Exposure time 28 d
Result: 31 % - Not readily biodegradable.
(OECD Test Guideline 301D)
Mobility in soil No information available
Results of PBT and vPvB assessment No information available
Other adverse effects No information available
Additional information
Stability in water - 0.12 - 1.2 h at 30 °C pH 7
Remarks: Hydrolyzes readily.

13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG Not dangerous goods during transportation
UN number None
UN proper shipping name None
Transport hazard class None
Packing group None
Environmental hazards None
Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code None
Special precaution for user None

15. REGULATION INFORMATION

US Federal Regulations
Us Toxic Substances Control Act (TSCA): Not listed
SARA 302: No chemicals were found .
SARA 313: No chemicals were found.
SARA 311/312 Hazards: DMSO : fire hazard, chronic health hazard

WHMIS Hazard Class Flammable liquids - Category 4

16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008
Refer to section 2 and section 3

Prepared by: Regulatory Department
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Version no.	6
Revision date (Initials)	2/22/2022 (ET)
Reason for revision	Added DMSO classifications and information to sections 2, 3 8, 11, 12 and 15. Update to new document template.

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.

46117 Landing Parkway, Fremont, CA 94538 U.S.A.
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http://www.biotium.com/

SAFETY DATA SHEET

Date: February 22, 2022

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ac-DEVD-CHO (5 mM)
Catalog Number: 99926/99927/30009-3B
Unit Size: 5 uL/ 20 uL/ 100 uL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: http://www.biotium.com

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION

GHS classification None
Signal word None
Health hazards None
Physical hazards None
Hazard statements None
Precautionary statements None
GHS hazard pictogram None

WHMIS classification
Flammable liquids - Category 4

NFPA Rating
Health hazard: 0
Fire: 2
Reactivity Hazard: 0

Classification according to Regulation (EC) No 1272/2008[CLP] None
Labeling according to Regulation (EC) No 1272/2008[CLP]
Hazard pictogram None
Signal word None
Hazard statements None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Weight %	Classification
DMSO	67-68-5	200-664-3	>99%	NA

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
Flush eyes with water as a precaution.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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5. FIREFIGHTING MEASURES

Suitable extinguishing media
Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.
Special protective equipment for firefighters
Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Avoid breathing vapors, mist or gas. Remove all sources of ignition.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up
Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapor or mist.
Avoid direct contact with substance.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Store at -20°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters
Substance Dimethylsulfoxide
CAS no. 67-68-5

Country	Austria	Denmark	Finland	Germany	Sweden	Switzerland
Limit value,8hours	160 mg/m3	160 mg/m3	50 ppm	160mg/m3	150 mg/m3	160 mg/m3
Limit value, short term	-	320mg/m3	-	320mg/m3	500 mg/m3	320 mg/m3

Personal protective equipment
Hand 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.
Respiratory protection
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Eye protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Ac-DEVD-CHO, 5mM
Appearance	Clear liquid

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Odor	No data available
Odor threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	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

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
No data available
Conditions to avoid
Heat, flames and sparks.
Materials to avoid
No data available
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity DMSO

Oral LD50 Rat - male and female - 28,300 mg/kg (OECD Test Guideline 401)
Inhalation LC50 Rat - male and female - 4 h - > 5.33 mg/l (OECD Test Guideline 403)
Dermal LD50 Rat - male and female - 40,000 mg/kg Remarks: (ECHA)
Other information on acute toxicity no data available

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

Ames test
Salmonella typhimurium
Result: negative
sister chromatid exchange assay

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Chinese hamster ovary cells
Result: negative
Mutagenicity (mammal cell test): chromosome aberration.
Chinese hamster ovary cells
Result: negative
OECD Test Guideline 474
Rat - male and female
Result: negative

Carcinogenicity

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.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

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

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 not been thoroughly investigated.
Eyes - Eye disease - Based on Human Evidence
Eyes - Eye disease - Based on Human Evidence

RTECS: PV6210000 (DMSO)

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish: static test LC50 - Danio rerio (zebra fish) - > 25,000 mg/l - 96 h (OECD Test Guideline 203)

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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 No information available
Bioaccumulative potential aerobic - Exposure time 28 d
Result: 31 % - Not readily biodegradable.
(OECD Test Guideline 301D)
Mobility in soil No information available
Results of PBT and vPvB assessment No information available
Other adverse effects No information available
Additional information
Stability in water - 0.12 - 1.2 h at 30 °C pH 7
Remarks: Hydrolyzes readily.

13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG Not dangerous goods during transportation
UN number None
UN proper shipping name None
Transport hazard class None
Packing group None
Environmental hazards None
Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code None
Special precaution for user None

15. REGULATION INFORMATION

US Federal Regulations
Us Toxic Substances Control Act (TSCA): Not listed
SARA 302: No chemicals were found .
SARA 313: No chemicals were found.
SARA 311/312 Hazards: DMSO : fire hazard, chronic health hazard

WHMIS Hazard Class Flammable liquids - Category 4

16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008
Refer to section 2 and section 3

Prepared by: Regulatory Department
Biotium Inc.
Version no. 6
Revision date (Initials) 2/22/2022 (ET)
Reason for revision Added DMSO classifications and information to sections 2, 3 8, 11, 12 and 15.
Update to new document template.

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SAFETY DATA SHEET

Date: February 22, 2022

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: R110, 80 uM
Catalog Number: 99906
Unit Size: 1 mL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: http://www.biotium.com

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION

GHS classification None
Signal word None
Health hazards None
Physical hazards None
Hazard statements None
Precautionary statements None
GHS hazard pictogram None

WHMIS classification
Flammable liquids - Category 4

NFPA Rating
Health hazard: 2
Fire: 2
Reactivity Hazard: 0

Classification according to Regulation (EC) No 1272/2008[CLP] None
Labeling according to Regulation (EC) No 1272/2008[CLP]
Hazard pictogram None
Signal word None
Hazard statements None
Precautionary statements None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Weight %	Classification
DMSO	67-68-5	200-664-3	>99%	NA

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
Flush eyes with water as a precaution.
If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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5. FIREFIGHTING MEASURES

Suitable extinguishing media
Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.
Special protective equipment for firefighters
Wear self contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Avoid breathing vapors, mist or gas. Remove all sources of ignition.
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods and materials for containment and cleaning up
Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapor or mist.
Avoid direct contact with substance.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Store at -20° C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters
Substance Dimethylsulfoxide
CAS no. 67-68-5

Country	Austria	Denmark	Finland	Germany	Sweden	Switzerland
Limit value,8hours	160 mg/m3	160 mg/m3	50 ppm	160mg/m3	150 mg/m3	160 mg/m3
Limit value, short term	-	320mg/m3	-	320mg/m3	500 mg/m3	320 mg/m3

Personal protective equipment
Hand 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.
Respiratory protection
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Eye protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	R110, 80 uM
Appearance	Liquid

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Odor	No data available
Odor threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	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

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
No data available
Conditions to avoid
Heat, flames and sparks.
Materials to avoid
No data available
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity DMSO

Oral LD50 Rat - male and female - 28,300 mg/kg (OECD Test Guideline 401)
Inhalation LC50 Rat - male and female - 4 h - > 5.33 mg/l (OECD Test Guideline 403)
Dermal LD50 Rat - male and female - 40,000 mg/kg Remarks: (ECHA)
Other information on acute toxicity no data available

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

Ames test
Salmonella typhimurium

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Result: negative
sister chromatid exchange assay
Chinese hamster ovary cells
Result: negative
Mutagenicity (mammal cell test): chromosome aberration.
Chinese hamster ovary cells
Result: negative
OECD Test Guideline 474
Rat - male and female
Result: negative

Carcinogenicity

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.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

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

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 not been thoroughly investigated.
Eyes - Eye disease - Based on Human Evidence
Eyes - Eye disease - Based on Human Evidence

RTECS: PV6210000 (DMSO)

12. ECOLOGICAL INFORMATION

Toxicity

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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 No information available
Bioaccumulative potential aerobic - Exposure time 28 d
Result: 31 % - Not readily biodegradable.
(OECD Test Guideline 301D)
Mobility in soil No information available
Results of PBT and vPvB assessment No information available
Other adverse effects No information available
Additional information
Stability in water - 0.12 - 1.2 h at 30 °C pH 7
Remarks: Hydrolyzes readily.

13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG Not dangerous goods during transportation
UN number None
UN proper shipping name None
Transport hazard class None
Packing group None
Environmental hazards None
Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code None
Special precaution for user None

15. REGULATION INFORMATION

US Federal Regulations
US Toxic Substances Control Act (TSCA): Not listed
SARA 302: No chemicals were found.
SARA 313: No chemicals were found.
SARA 311/312: No chemicals were found

WHMIS Hazard Class Flammable liquids - Category 4

16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008
Refer to section 2 and section 3

Prepared by: Regulatory Department
Biotium Inc.
Version no. 6
Revision date (Initials) 2/22/2022 (ET)
Reason for revision Added DMSO classifications and information to sections 2, 3 8, 11, 12 and 15.
Update to new document template.

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