

SDS DATE: May 29, 2023

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Crystal Violet Cytotoxicity Assay Kit
PRODUCT CODES: Cat# CPT-0102
RESTRICTIONS ON USE: For laboratory research purposes only. Not for drug or household use.
MANUFACTURER: AkrivisBio, Inc.
ADDRESS: 48511 Warm Springs Blvd., Suite 213, Fremont, CA 94539
EMERGENCY PHONE: 408-739-9315
OTHER CALLS:
FAX PHONE:
EMAIL: sds@akrivosbio.com

SECTION 2: HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
Crystal Violet Stain	Contains Crystal Violet	44 ml	See below
Wash Solution Concentrate	Liquid	115 ml	No hazards
Solubilization Solution	Contains SDS	100 ml	See below
Doxorubicin	In DMSO	100 µl	See below

SDS:

Emergency Overview

OSHA Hazards: Flammable solid, Target organ effect, Harmful by ingestion, Irritant, Toxic by skin absorption

Target Organs: Lungs

GHS Classification: Flammable solids (Category 1)
Acute toxicity, Oral (Category 3)
Acute toxicity, Dermal (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity – single exposure (Category 3)
Acute aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram:



Signal word:

warning

Hazard statement(s):

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H412: Harmful to aquatic life with long-lasting effects.

Precautionary statement(s):

P210 Keep away from heat/sparks/open flames/hot surfaces – no smoking.
P261 Avoid breathing dust/fumes/gas/mist/vapors/spray.
P264 Wash hands thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 IF SWALLOWED: Call a POISON CENTER or doctor/physician.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501 Dispose of contents/container to an approved waste disposal plant.

HMIS Classification

Health hazard: 2
Chronic health hazard: *
Flammability: 3

Physical hazards: 3

NFPA Rating

Health Hazard: 2
Fire: 3
Reactivity Hazard: 3

Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: Toxic if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: Harmful if swallowed.

Crystal Violet:

Emergency Overview

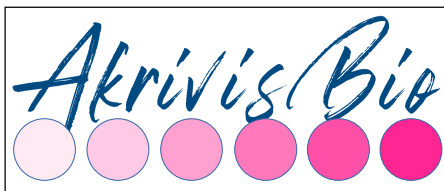
GHS Classification:

Acute toxicity, Oral (Category 4), H302
Serious eye damage (Category 1), H318
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

GHS Label elements, including precautionary statements

Pictogram:





Signal word: Danger
Hazard statement(s): H302 Harmful if swallowed.
H318 Causes serious eye damage.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s):

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
P281 Use personal protective equipment as required.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 2
Flammability: 0
Physical hazards: 0

NFPA Rating

Health Hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

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

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 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
DMSO	67-68-5	200-664-3	78.13	C ₂ H ₆ OS
SDS	151-21-3	205-788-1	288.38	CH ₃ (CH ₂) ₁₁ OSO ₃ Na
Crystal Violet	--	--	--	--

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.

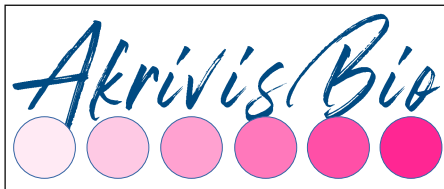
If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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



DMSO:

Suitable extinguishing media: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products: Hazardous combustion products formed under fire conditions – no data available.

Further information: Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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

Methods for cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

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

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) 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).

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.

Eye 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 and 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.

Hygiene measures

Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	DMSO	SDS	Crystal Violet
Appearance:	Clear liquid	White solid	No data available
pH:	No data available	7.2	No data available
Water Solubility:	Completely miscible	Soluble	No data available
Other Solubility:	No data available	No data available	No data available
Boiling Point (°C):	189 °C (372 °F)	No data available	No data available
Melting Point (°C):	16-19 °C (61-66 °F)	204-207 °C (399-405 °F)	No data available
Flash Point (°C):	87 °C (189 °F)	180 °C (356 °F)	No data available
Ignition Temperature (°C):	301 °C (574 °F)	No data available	No data available
Density:	1.1 g/ml	0.370 g/cm ³	No data available

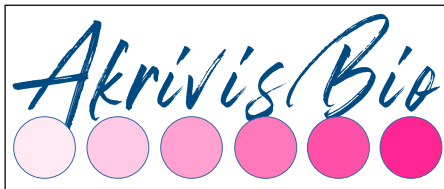
SECTION 10: STABILITY AND REACTIVITY

Property	DMSO	SDS	Crystal Violet
Chemical stability:	Stable under recommended storage conditions		
Conditions to avoid:	Heat, Flames, Sparks	Heat, flames and sparks. Extremes of temperature and direct sunlight.	No data available
Materials to avoid:	Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents	Oxidizing agents	Strong oxidizing agents, strong acids, strong bases
Hazardous decomposition products:	Carbon oxides, sulfur oxides	Carbon oxides, sulfur oxides, sodium oxides	No data available

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

Skin corrosion/irritation: Skin – rabbit – no skin irritation – 4h

Serious eye damage/eye irritation: Eyes – rabbit – mild eye irritation

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: 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

Carcinogenicity: Carcinogenicity – rat – Oral → Tumorigenic: equivocal tumorigenic agent by RTECS criteria. Skin and appendages: other: tumors.

Carcinogenicity – mouse – Oral → Tumorigenic: equivocal tumorigenic agent by RTECS criteria. Leukemia 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.

Reproductive toxicity: 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: post-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea). Effects on embryo/fetus: Fetotoxicity (except death, e.g. stunted fetus). Specific developmental abnormalities: musculoskeletal system.

Teratogenicity: Developmental toxicity – mouse – Intraperitoneal: Effects on embryo/fetus: Fetotoxicity (except death, e.g. stunted fetus).

Specific developmental abnormalities: musculoskeletal system

Specific target organ toxicity – single exposure (GHS): no data available

Specific target organ toxicity – repeated exposure (GHS): no data available

Aspiration hazard: no data available

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.

Signs and Symptoms of Exposure: Effects due to ingestion may include: nausea, fatigue, and/or headache.

Additional information: RTECS: PV6210000

SDS:

Acute toxicity: LD50 Oral – rat – 1,288 mg/kg

LC50 Inhalation – rat – 1 h – >3,900 mg/m³

LC50 Dermal – rabbit – 580 mg/kg

Skin corrosion/irritation: Skin – rabbit – skin irritation – 24 h

Serious eye damage/eye irritation: Eyes – rabbit – risk of serious damage to eyes. OECD Test Guideline 405.

Respiratory or skin sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity: no data available

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

Teratogenicity: no data available

Specific target organ toxicity – single exposure (GHS): Inhalation – may cause respiratory irritation.

Specific target organ toxicity – repeated exposure (GHS): no data available

Aspiration hazard: no data available

Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Skin: Toxic if absorbed through skin. Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: Harmful if swallowed.

Synergistic effects: no data available

Additional information: RTECS: WT1050000

Crystal Violet:

Acute toxicity: LD50 Oral - Mouse - 96 mg/kg

LD50 Oral - Rabbit - 150 mg/kg

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Rat - 8.9 mg/kg

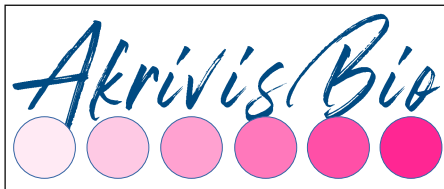
LD50 Intraperitoneal - Mouse - 5.1 mg/kg

LD50 Intraperitoneal - Rabbit - 5 mg/kg

LD50 Intraduodenal - Rabbit - 160 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: Severe eye irritation



Respiratory or skin sensitization: no data available

Germ cell mutagenicity: Human

HeLa cell

DNA inhibition

Human

HeLa cell

Cytogenetic analysis

Human

lymphocyte

Cytogenetic analysis

Rat

Liver

DNA inhibition

Mouse

lymphocyte

DNA damage

Hamster

ovary

Cytogenetic analysis

Mammal

lymphocyte

DNA damage

Mammal

Other cell types

Cytogenetic analysis

Non-mammalian

Other cell types

Cytogenetic analysis

Result: Equivocal evidence.

Histidine reversion (Ames)

Carcinogenicity: Limited evidence of a carcinogenic effect.

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

Teratogenicity: no data available

Specific target organ toxicity – single exposure (GHS): no data available

Specific target organ toxicity – repeated exposure (GHS): no data available

Aspiration hazard: no data available

Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.

Skin: Harmful if absorbed through skin. Causes skin irritation.

Eyes: Causes eye irritation.

Ingestion: Harmful if swallowed.

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

Synergistic effects: no data available

Additional information: RTECS: not available

Prolonged or repeated exposure can cause: Nausea, Headache, Vomiting

SECTION 12: ECOLOGICAL INFORMATION

SDS:

Persistence and degradability: Biodegradability: Result → 90% readily biodegradable

Toxicity: Toxicity to fish: mortality NOEC – *Oncorhynchus mykiss* (rainbow trout) – 19.5 mg/l – 96 h

Mortality LOEC – *Pimephales promelas* (fathead minnow) – 4.6 mg/l – 8 d

LC50 – *Oncorhynchus mykiss* (rainbow trout) – 3.6 mg/l – 96 h

Toxicity to algae: Growth inhibition LOEC – *Pseudokirchneriella subcapitata* – 2.68 mg/l – 6 d

Bioaccumulative potential: Bioaccumulation: *Cyprinus carpio* (Carp) – 72 h

Bioconcentration factor (BCF): 3.9-5.3

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life.

Crystal Violet:

Persistence and degradability: no data available

Toxicity: Toxicity to daphnia and other aquatic invertebrates

EC50 - *Daphnia magna* (Water flea) - 0.35 mg/l - 48 h

(OECD Test Guideline 202)

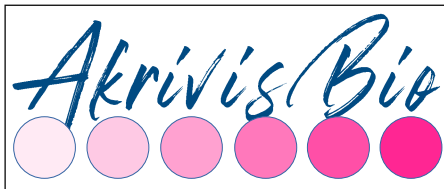
Toxicity to algae EC50 - *Pseudokirchneriella subcapitata* - 0.42 mg/l - 72 h

(OECD Test Guideline 201)

Bioaccumulative potential:

Biodegradability Result: 10 % - Not readily biodegradable.

Ratio BOD/ThBOD 0.12 %



Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.

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. Contact licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

SDS:

DOT (US): UN-number: 2926, Class: 4.1 (6.1), Packing group: II; Proper shipping name: Flammable solids, toxic, organic, n.o.s. (Sodium dodecyl sulfate); Marine pollutant: No; Poison Inhalation Hazard: No

IMDG: UN-number: 2926, Class: 4.1 (6.1), Packing group: II; EMS-No: F-A, S-G; Proper shipping name: FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S. (Sodium dodecyl sulfate); Marine pollutant: No

IATA: UN-number: 2926, Class: 4.1 (6.1), Packing group: II; Proper shipping name: Flammable solids, toxic, organic, n.o.s. (Sodium dodecyl sulfate)

Crystal Violet:

DOT (US): Not dangerous goods.

IMDG: UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (C.I. Basic violet 3)

Marine pollutant:yes

IATA: UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (C.I. Basic violet 3)

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

SARA 302 Components: SARA 302: No chemical 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: Crystal Violet: Acute Health Hazard

DMSO: Acute Health Hazard, Chronic Health Hazard

SDS: Fire Hazard, Acute Health 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: DMSO, CAS-No. 67-68-5

Sodium dodecyl sulfate, CAS-No. 151-21-3

Crystal Violet, CAS-No. 548-62-9

New Jersey Right To Know Components: DMSO, CAS-No. 67-68-5

Sodium dodecyl sulfate, CAS-No. 151-21-3

Crystal Violet, CAS-No. 548-62-9

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

EU regulations:

Component	Risk Phrases	Safety Phrases
DMSO	R10, R36/37/38	S24/25, S36/37/39, S45
SDS	R10, R25, R36/38, R45	S23, S24/25, S26, S45
Crystal Violet	--	--

SECTION 16: OTHER INFORMATION

DISCLAIMER:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. AkrivisBio Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.