

SAFETY DATA SHEET



Seahorse XF Cell Mito Stress Test Kit, Part Number 103015-100

Section 1. Identification

1.1 Product identifier

Product name : Seahorse XF Cell Mito Stress Test Kit, Part Number 103015-100
Part no. (chemical kit) : 103015-100
Part no. : Oligomycin Not available.
 FCCP Not available.
 Antimycin A/ Rotenone Not available.
Validation date : 4/21/2022

1.2 Relevant identified uses of the substance or mixture and uses advised against

Material uses : For research use only. Not for use in diagnostic procedures (RUO).
 Oligomycin 6 x 5.722 mg
 FCCP 6 x 22.593 mg
 Antimycin A/ Rotenone 6 x 5.725 mg

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture


OSHA/HCS status : Oligomycin	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
FCCP	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
Antimycin A/ Rotenone	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

Antimycin A/ Rotenone
 H400 AQUATIC HAZARD (ACUTE) - Category 1
 H410 AQUATIC HAZARD (LONG-TERM) - Category 1

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms	: Antimycin A/ Rotenone	
Signal word	: Oligomycin FCCP Antimycin A/ Rotenone	No signal word. No signal word. Warning
Hazard statements	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. H410 - Very toxic to aquatic life with long lasting effects.
<u>Precautionary statements</u>		
Prevention	: Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. P273 - Avoid release to the environment.
Response	: Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. P391 - Collect spillage.
Storage	: Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. Not applicable.
Disposal	: Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	: Oligomycin FCCP Antimycin A/ Rotenone	None known. None known. None known.
<u>2.3 Other hazards</u>		
Hazards not otherwise classified	: Oligomycin FCCP Antimycin A/ Rotenone	None known. None known. None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Oligomycin FCCP Antimycin A/ Rotenone	Mixture Mixture Mixture
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Ingredient name	%	CAS number
Oligomycin Sodium chloride	≤3	7647-14-5
FCCP Sodium chloride	≤3	7647-14-5
Antimycin A/ Rotenone Sodium chloride	≤3	7647-14-5
Antimycin A	≤0.3	1397-94-0
(2R,6aS,12aS)-1,2,6,6a,12,12a-hexahydro-2-isopropenyl-8,9-dimethoxychromeno[3,4-b]furo[2,3-h]chromen-6-one	≤0.3	83-79-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	: Oligomycin	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	FCCP	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	Antimycin A/ Rotenone	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation	: Oligomycin	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	FCCP	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	Antimycin A/ Rotenone	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	: Oligomycin	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	FCCP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Antimycin A/ Rotenone	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Oligomycin	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	FCCP	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical

Section 4. First aid measures

Antimycin A/ Rotenone

personnel. Get medical attention if symptoms occur.

Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Inhalation	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: Oligomycin FCCP Antimycin A/ Rotenone	No specific data. No specific data. No specific data.
Inhalation	: Oligomycin FCCP Antimycin A/ Rotenone	No specific data. No specific data. No specific data.
Skin contact	: Oligomycin FCCP Antimycin A/ Rotenone	No specific data. No specific data. No specific data.
Ingestion	: Oligomycin FCCP Antimycin A/ Rotenone	No specific data. No specific data. No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: Oligomycin	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	FCCP	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Antimycin A/ Rotenone	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 4. First aid measures

Specific treatments	: Oligomycin FCCP Antimycin A/ Rotenone	No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: Oligomycin FCCP Antimycin A/ Rotenone	No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Oligomycin FCCP Antimycin A/ Rotenone	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Oligomycin FCCP Antimycin A/ Rotenone	None known. None known. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: Oligomycin FCCP Antimycin A/ Rotenone	No specific fire or explosion hazard. No specific fire or explosion hazard. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	: Oligomycin FCCP Antimycin A/ Rotenone	Decomposition products may include the following materials: halogenated compounds metal oxide/oxides Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides Decomposition products may include the following materials: halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

Section 5. Fire-fighting measures

Special protective actions for fire-fighters	: Oligomycin	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	FCCP	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	Antimycin A/ Rotenone	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Oligomycin	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	FCCP	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Antimycin A/ Rotenone	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Oligomycin	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	FCCP	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	Antimycin A/ Rotenone	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: Oligomycin	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	FCCP	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Antimycin A/ Rotenone	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

6.2 Environmental precautions	: Oligomycin	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	FCCP	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Antimycin A/ Rotenone	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	: Oligomycin	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	FCCP	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
	Antimycin A/ Rotenone	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	: Oligomycin	Put on appropriate personal protective equipment (see Section 8).
	FCCP	Put on appropriate personal protective equipment (see Section 8).
	Antimycin A/ Rotenone	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	: Oligomycin	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	FCCP	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face

Section 7. Handling and storage

Antimycin A/ Rotenone

before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

: Oligomycin

Storage temperature: room temperature. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

FCCP

Storage temperature: room temperature. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Antimycin A/ Rotenone

Storage temperature: room temperature. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations

: Oligomycin
FCCP
Antimycin A/ Rotenone

Industrial applications, Professional applications.
Industrial applications, Professional applications.
Industrial applications, Professional applications.

Industrial sector specific solutions

: Oligomycin
FCCP
Antimycin A/ Rotenone

Not available.
Not available.
Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Oligomycin Sodium chloride	None.
FCCP Sodium chloride	None.
Antimycin A/ Rotenone Sodium chloride Antimycin A (2R,6aS,12aS)-1,2,6,6a,12,12a-hexahydro-2-isopropenyl-8,9-dimethoxychromeno[3,4-b]furo[2,3-h]chromen-6-one	None. None. ACGIH TLV (United States, 1/2021). TWA: 5 mg/m ³ 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. NIOSH REL (United States, 10/2020). TWA: 5 mg/m ³ 10 hours. OSHA PEL (United States, 5/2018). TWA: 5 mg/m ³ 8 hours.

8.2 Exposure controls

Appropriate engineering controls

- : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

- : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: Oligomycin FCCP Antimycin A/ Rotenone	Solid. Solid. Solid.
Color	: Oligomycin FCCP Antimycin A/ Rotenone	White. Pale color. / Yellow. White.
Odor	: Oligomycin FCCP Antimycin A/ Rotenone	Odorless. Odorless. Odorless.
Odor threshold	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
pH	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Melting point/freezing point	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Boiling point, initial boiling point, and boiling range	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Flash point	: <input checked="" type="checkbox"/> Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. Not applicable.
Evaporation rate	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Flammability	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Lower and upper explosion limit/flammability limit	: <input checked="" type="checkbox"/> Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. Not applicable.
Vapor pressure	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Relative vapor density	: <input checked="" type="checkbox"/> Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. Not applicable.
Relative density	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Solubility	: <input checked="" type="checkbox"/> Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.

Section 9. Physical and chemical properties and safety characteristics

Partition coefficient: n-octanol/water	: Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. Not applicable.
Auto-ignition temperature	: Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. Not applicable.
Decomposition temperature	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
Viscosity	: Oligomycin FCCP Antimycin A/ Rotenone	Not applicable. Not applicable. Not applicable.

Particle characteristics

Median particle size	: Oligomycin FCCP Antimycin A/ Rotenone	Not available. Not available. Not available.
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Section 10. Stability and reactivity

10.1 Reactivity	: Oligomycin FCCP Antimycin A/ Rotenone	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Oligomycin FCCP Antimycin A/ Rotenone	The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	: Oligomycin FCCP Antimycin A/ Rotenone	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Oligomycin FCCP Antimycin A/ Rotenone	No specific data. No specific data. No specific data.
10.5 Incompatible materials	: Oligomycin FCCP Antimycin A/ Rotenone	May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: Oligomycin FCCP Antimycin A/ Rotenone	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Oligomycin Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
FCCP Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
Antimycin A/ Rotenone Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
Antimycin A	LD50 Oral	Rat	28 mg/kg	-
(2R,6aS,12aS)-1,2,6,6a, 12,12a-hexahydro- 2-isopropenyl- 8,9-dimethoxychromeno [3,4-b]furo[2,3-h]chromen- 6-one	LD50 Oral	Rat	25 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Oligomycin Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
FCCP Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Antimycin A/ Rotenone Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
(2R,6aS,12aS)-1,2,6,6a, 12,12a-hexahydro- 2-isopropenyl- 8,9-dimethoxychromeno [3,4-b]furo[2,3-h]chromen- 6-one	Eyes - Mild irritant	Rabbit	-	1 %	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

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Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Antimycin A/ Rotenone (2R,6aS,12aS)-1,2,6,6a,12,12a-hexahydro-2-isopropenyl-8,9-dimethoxychromeno[3,4-b]furo[2,3-h]chromen-6-one	Category 3 Category 3	-	Respiratory tract irritation Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Oligomycin : Not available.
FCCP : Not available.
Antimycin A/ Rotenone : Not available.

Potential acute health effects

Eye contact : Oligomycin : No known significant effects or critical hazards.
FCCP : No known significant effects or critical hazards.
Antimycin A/ Rotenone : No known significant effects or critical hazards.

Inhalation : Oligomycin : No known significant effects or critical hazards.
FCCP : No known significant effects or critical hazards.
Antimycin A/ Rotenone : No known significant effects or critical hazards.

Skin contact : Oligomycin : No known significant effects or critical hazards.
FCCP : No known significant effects or critical hazards.
Antimycin A/ Rotenone : No known significant effects or critical hazards.

Ingestion : Oligomycin : No known significant effects or critical hazards.
FCCP : No known significant effects or critical hazards.
Antimycin A/ Rotenone : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Oligomycin : No specific data.
FCCP : No specific data.
Antimycin A/ Rotenone : No specific data.

Inhalation : Oligomycin : No specific data.
FCCP : No specific data.
Antimycin A/ Rotenone : No specific data.

Skin contact : Oligomycin : No specific data.
FCCP : No specific data.
Antimycin A/ Rotenone : No specific data.

Ingestion : Oligomycin : No specific data.
FCCP : No specific data.
Antimycin A/ Rotenone : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

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Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	: <input checked="" type="checkbox"/> Oligomycin FCCP Antimycin A/ Rotenone	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
<input checked="" type="checkbox"/> Oligomycin Oligomycin Sodium chloride	110784 3000	N/A N/A	N/A N/A	N/A N/A	N/A N/A
FCCP FCCP Sodium chloride	110103.4 3000	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Antimycin A/ Rotenone Antimycin A/ Rotenone Sodium chloride Antimycin A (2R,6aS,12aS)-1,2,6,6a,12,12a-hexahydro-2-isopropenyl-8,9-dimethoxychromeno[3,4-b]furo[2,3-h]chromen-6-one	110285.4 3000 28 25	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> Oligomycin Sodium chloride	Acute EC50 2430000 µg/l Fresh water Acute EC50 519.6 mg/l Fresh water Acute EC50 402.6 mg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water Chronic NOEC 6 g/L Fresh water	Algae - Navicula seminulum Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling) Aquatic plants - Lemna minor	96 hours 48 hours 48 hours 96 hours 96 hours 3 weeks 96 hours

Section 12. Ecological information

FCCP Sodium chloride	Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	21 days 8 weeks
	Acute EC50 2430000 µg/l Fresh water Acute EC50 519.6 mg/l Fresh water Acute EC50 402.6 mg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Algae - Navicula seminulum Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 48 hours 48 hours 96 hours 96 hours 3 weeks
Antimycin A/ Rotenone Sodium chloride	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 21 days 8 weeks
	Acute EC50 2430000 µg/l Fresh water Acute EC50 519.6 mg/l Fresh water Acute EC50 402.6 mg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Algae - Navicula seminulum Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 48 hours 48 hours 96 hours 96 hours 3 weeks
Antimycin A (2R,6aS,12aS)-1,2,6,6a,12,12a-hexahydro-2-isopropenyl-8,9-dimethoxychromeno[3,4-b]furo[2,3-h]chromen-6-one	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water Acute EC50 0.024 ppm Marine water Acute LC50 0.000019 mg/l Fresh water Acute EC50 190 µg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult Crustaceans - Penaeus duorarum Fish - Oncorhynchus mykiss Crustaceans - Simocephalus serrulatus - Larvae	96 hours 21 days 8 weeks 48 hours 96 hours 48 hours
	Acute EC50 3.7 µg/l Fresh water Acute LC50 1.9 ppb Fresh water Chronic NOEC 0.3 ppb Fresh water Chronic NOEC 1.01 ppb	Daphnia - Daphnia magna Fish - Oncorhynchus mykiss Daphnia - Daphnia magna Fish - Oncorhynchus mykiss	48 hours 96 hours 21 days 32 days

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Antimycin A/ Rotenone (2R,6aS,12aS)-1,2,6,6a,12,12a-hexahydro-2-isopropenyl-8,9-dimethoxychromeno[3,4-b]furo[2,3-h]chromen-6-one	4.1	25.7	low

12.4 Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

Additional information

Remarks: De minimis quantities

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations : **TSCA 4(a) proposed test rules:** Glycine
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 307: [[4-(trifluoromethoxy)phenyl]hydrazono]malononitrile
Clean Water Act (CWA) 311: Nitric acid, iron(3+) salt, nonahydrate

Section 15. Regulatory information

Clean Air Act Section 112 : Listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Antimycin A/ Rotenone Antimycin A	≤0.3	Yes.	1000 / 10000	-	1000	-

SARA 304 RQ : 1158301.2 lbs / 525868.7 kg

SARA 311/312

Classification : Oligomycin Not applicable.
FCCP Not applicable.
Antimycin A/ Rotenone Not applicable.

Composition/information on ingredients

Name	%	Classification
Oligomycin Sodium chloride	≤3	EYE IRRITATION - Category 2A
FCCP Sodium chloride	≤3	EYE IRRITATION - Category 2A
Antimycin A/ Rotenone Sodium chloride	≤3	EYE IRRITATION - Category 2A

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Section 15. Regulatory information

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Europe	: Not determined.
Japan	: Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: Not determined.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: Not determined.
Viet Nam	: Not determined.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Antimycin A/ Rotenone AQUATIC HAZARD (ACUTE) - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method Calculation method

History

Date of issue	: 04/21/2022
Date of previous issue	: 05/07/2018
Version	: 4

Key to abbreviations

: ATE = Acute Toxicity Estimate
: BCF = Bioconcentration Factor
: GHS = Globally Harmonized System of Classification and Labelling of Chemicals
: IATA = International Air Transport Association
: IBC = Intermediate Bulk Container
: IMDG = International Maritime Dangerous Goods
: LogPow = logarithm of the octanol/water partition coefficient
: MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
: N/A = Not available
: UN = United Nations

✔ Indicates information that has changed from previously issued version.

Notice to reader

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