MSDS: Lipid Peroxidation Assay Kit
Product No. FR 12

This product, FR 12 – Lipid Peroxidation Assay Kit, is provided and produced by Oxford Biomedical Research as an in vitro diagnostic test kit for the sole purpose of research use.

Manufacturer:
Oxford Biomedical Research
2165 Avon Industrial Dr.
Rochester Hills, MI 48309
(248) 852-8815

Section 1 - Hazardous Components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Name: Acetonitrile</td>
</tr>
<tr>
<td></td>
<td>CAS #: 75-05-8</td>
</tr>
<tr>
<td></td>
<td>MF: C2H3N</td>
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<tr>
<td>R2</td>
<td>Name: Methanesulfonic Acid</td>
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<tr>
<td></td>
<td>CAS #: 75-75-2</td>
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<tr>
<td></td>
<td>MF: CH4SO3</td>
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<tr>
<td>Diluent</td>
<td>Name: Ferric Chloride Hexahydrate</td>
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<tr>
<td></td>
<td>CAS #: 10025-77-1</td>
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<tr>
<td></td>
<td>MF: FeCl3 • 6H2O</td>
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<tr>
<td></td>
<td>Name: Methanol</td>
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<tr>
<td></td>
<td>CAS #: 67-56-1</td>
</tr>
<tr>
<td></td>
<td>MF: CH4O</td>
</tr>
</tbody>
</table>

Section 2 - Physical and Chemical Characteristics:

**Acetonitrile:**
- Boiling Point: 81-82°C @ 10 mm Hg
- Vapor Pressure: 72.8 mm Hg @ 20°C
- Vapor Density: 1.41 g/L
- Solubility in Water: Soluble
- Specific Gravity: 0.786 g/cm³
- Melting Point: -48°C
- Evaporation Rate: 5.79
- Appearance: Clear Liquid

**Methanesulfonic Acid:**
- Boiling Point: 167°C @ 10 mm Hg
- Vapor Pressure: <1 mm Hg @ 20°C
- Vapor Density: 3.3 g/L
- Solubility in Water: Soluble
Specific Gravity: 1.482 g/cm³  
Melting Point: N/A  
Evaporation Rate: Not Determined  
Appearance: Viscous, Clear Liquid

**Ferric Chloride Hexahydrate:**
Boiling Point: 280-285°C @ 760 mm Hg  
Vapor Pressure: 1 mm Hg @ 194°C  
Vapor Density: Not Determined  
Solubility in Water: Soluble  
Specific Gravity: Not Determined  
Melting Point: 37°C  
Evaporation Rate: Not Determined  
Appearance: Yellow Powder

**Methanol:**
Boiling Point: 64-65°C @ 760 mm Hg  
Vapor Pressure: 97.68 mm Hg @ 20°C  
Vapor Density: 0.79 g/L  
Solubility in Water: Soluble  
Specific Gravity: 0.791 g/cm³  
Melting Point: -98°C  
Evaporation Rate: Not Determined  
Appearance: Clear Liquid

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**Section 3 - Fire and Explosion Hazard Data:**

**Acetonitrile:**
Flash Point: 6°C (42°F)  
Special Fire Fighting Measures: Dry Chemical, CO₂, “Alcohol” Foam  
Unusual Fire and Explosion Hazards: Vapor may travel away from source and cause flashback upon ignition.  
Auto-Ignition Temperature: 524°C (975.2°F)  
Explosion Limits:  Upper: 4.4%  Lower: 16%

**Methanesulfonic Acid:**
Flash Point: 170°C (338°F)  
Special Fire Fighting Measures: Dry Chemical, CO₂  
Unusual Fire and Explosion Hazards: Releases toxic gas upon ignition  
Auto-Ignition Temperature: N/A  
Explosion Limits:  Upper: N/A  Lower: N/A

**Ferric Chloride Hexahydrate:**
Flash Point: Not Determined  
Special Fire Fighting Measures: Dry Chemical, CO₂, Water Spray  
Unusual Fire and Explosion Hazards: Not Determined  
Auto-Ignition Temperature: N/A  
Explosion Limits:  Upper: Not Determined  Lower: Not Determined

**Methanol:**
Flash Point: 11°C (52°F)  
Special Fire Fighting Measures: Dry Chemical, CO₂, Water Spray  
Unusual Fire and Explosion Hazards: Vapor may travel away from source and cause flashback upon ignition.  
Auto-Ignition Temperature: 455°C (851°F)  
Explosion Limits:  Upper: 6%  Lower: 36%
Section 4 – Reactivity Hazard Data:

**Acetonitrile:**
Stability: Reactive, Corrosive, Flammable
Conditions to Avoid: Sources of Ignition, Excess Heat, Moisture
Hazardous Polymerization: Will Not Occur
Hazardous Decomposition/Byproducts: Hydrogen Cyanide, Nitrogen Oxides, Carbon Monoxide, Carbon Dioxide
Material Incompatibility: Acids, Bases, Oxidizing Agents, Reducing Agents, Alkali Metals

**Methanesulfonic Acid:**
Stability: Reactive, Corrosive
Conditions to Avoid: N/A
Hazardous Polymerization: Will Not Occur
Hazardous Decomposition/Byproducts: Sulfur Oxides, Carbon Monoxide, Carbon Dioxide
Material Incompatibility: Amines, Strong Oxidizing Agents, Strong Reducing Agents

**Ferric Chloride Hexahydrate:**
Stability: Stable
Conditions to Avoid: Moisture
Hazardous Polymerization: Will Not Occur
Hazardous Decomposition/Byproducts: Hydrogen Chlorine Gas, Iron Oxides
Material Incompatibility: Strong Oxidizing Agents

!Reacts EXPLOSIVELY with Sodium Metal and Potassium Metal!

**Methanol:**
Stability: Stable
Conditions to Avoid: Sources of Ignition, Excess Heat
Hazardous Polymerization: Will Not Occur
Hazardous Decomposition/Byproducts: Carbon Monoxide, Carbon Dioxide
Material Incompatibility: Acids, Acid Chloride, Acid Anhydrides, Oxidizing Agents, Reducing Agents, Alkali Metals

Section 5 - Health Hazard Data:

**Acetonitrile:**
Exposure Limits: OSHA PEL: 40 ppm / 70 mg/m³  ACGIH: 20 ppm skin
Toxicity Data: Toxic - Carcinogen
Health Hazards: Toxic by inhalation, ingestion, or skin absorption. Irritant. Destructive to eyes, respiratory system and skin.
Chronic Exposure: Reproductive Hazard, Carcinogen
Target Organs: Central Nervous System, Liver, Kidneys, Blood, Lungs
First Aid: Ingestion: Wash mouth out with water if conscious and seek immediate medical attention.
Inhalation: Expose to fresh air and seek immediate medical
attention. Give oxygen if breathing is difficult.
Skin: Flush area with water for 15 minutes and seek immediate medical attention. Remove contaminated clothing.
Eyes: Flush with water for 15 minutes while lifting eyelids and seek immediate medical attention.

Methanesulfonic Acid:
Exposure Limits: Not Established
Toxicity Data: Toxic
Health Hazards: Corrosive, causes burns. Harmful by ingestion, inhalation, or skin absorption. Destructive to eyes, respiratory system and skin. Inhalation may be fatal.
Chronic Exposure: Burns
Target Organs: Skin
First Aid: Ingestion: Give large amounts of water if conscious and seek immediate medical attention. Do not induce vomiting.
Inhalation: Expose to fresh air and seek immediate medical attention. Give oxygen if breathing is difficult.
Skin: Flush area with water for 15 minutes and seek immediate medical attention. Remove contaminated clothing.
Eyes: Flush with water for 15 minutes while lifting eyelids and seek immediate medical attention.

Ferric Chloride Hexahydrate:
Exposure Limits: TLV: 1 mg/m³
Toxicity Data: Toxic
Health Hazards: Toxic by inhalation, ingestion, or skin absorption. Irritant. Destructive to eyes, respiratory system and skin.
Chronic Exposure: Systemic Metal Poisoning, Liver and Kidney Damage
Target Organs: Liver, Kidneys, Eyes
First Aid: Ingestion: Induce vomiting by drinking 2-4 glasses of water and touching the back of the throat with fingers if conscious and seek immediate medical attention.
Inhalation: Expose to fresh air and seek immediate medical attention. Give oxygen if breathing is difficult.
Skin: Flush area with water for 15 minutes and seek medical attention if irritation persists.
Eyes: Flush area with water for 15 minutes while lifting eyelids and seek immediate medical attention.

Methanol:
Exposure Limits: OSHA PEL: 200 ppm / 260 mg/m³
Toxicity Data: Toxic – Cannot be made non-toxic.
Health Hazards: Toxic by ingestion, inhalation, or skin absorption. Destructive
to eyes, respiratory system and skin. Ingestion may cause blindness or death. Direct contact with eyes can cause inflammation and transient corneal opacity.

Chronic Exposure: Teratogen, Mutagen, Reproductive Hazard
Target Organs: Eyes, Kidneys, Liver, Heart, Central Nervous System
First Aid:
Ingestion: Induce vomiting by drinking 2-4 glasses of water and touching the back of the throat with fingers if conscious and seek immediate medical attention.
Inhalation: Expose to fresh air and seek immediate medical attention. Give oxygen if breathing is difficult.
Skin: Flush area with water for 15 minutes and seek immediate medical attention. Remove contaminated clothing.
Eyes: Flush with water for 15 minutes while lifting eyelids and seek immediate medical attention.

Section 6 - Control Measures:
Respiratory Protection: Do not breath vapors.
Ventilation: Requires local exhaust.
Protective Gloves: Proper disposable gloves.
Eye Protection: Safety glasses or goggles.
Other Protective Equipment: Uniform, lab coat, or disposable lab wear.
Work/Hygienic Practices: Follow usual precautionary measures for handling chemicals. Keep away from food and beverages.

Section 7 - Handling and Use Precautions:
Accidental Release Measures: Wear suitable protective equipment to prevent inhalation, ingestion, or skin and eye contact. Cover spills with sand, soda ash, or dry-lime.
Waste Disposal: Disposal shall be in accordance with local, state, or federal guidelines.
Handling and Storage: 4-8°C

Section 8 – Transportation Information
Domestic (Land, D.O.T.) and International (Water, I.M.O., Air, I.C.A.O.)
Proper Shipping Name: Chemical Kit
UN/NA: UN3316
Packing Group: II

Section 9 – Regulatory Information
Acetonitrile:
EU DIRECTIVES CLASSIFICATION
Symbol of Danger: F-Xn
R: 11-20/21/22-36
Risk Statements: Highly flammable. Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes.
S: 16-36/37
Safety Statements: Keep away from sources of ignition – no smoking. Wear suitable protective clothing and gloves.

US CLASSIFICATION AND LABEL TEXT
Risk Statements: Harmful by inhalation, in contact with skin and if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes.
Safety Statements: Keep away from sources of ignition – no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: This material can produce a cyanide-like effect.
Target organ(s): Central nervous system. Liver.

Methanesulfonic Acid:
EU DIRECTIVES CLASSIFICATION
Symbol of Danger: C
Indication of Danger: Corrosive.
R: 34
Risk Statements: Causes burns.
S: 26-36-45
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Toxic.
Risk Statements: Toxic if swallowed. Causes burns.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Ferric Iron Chloride:
EU ADDITIONAL CLASSIFICATION
Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 22-38-41
Risk Statements: Harmful if swallowed. Irritating to skin. Risk of serious damage to eyes.
S: 26-39
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Harmful.
Risk Statements: Harmful if swallowed. Irritating to skin. Risk of serious damage to eyes. Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

**Methanol:**

**EU DIRECTIVES CLASSIFICATION**

- Symbol of Danger: F-T
- Indication of Danger: Highly Flammable. Toxic.
- Risk Statements: Highly flammable. Toxic by inhalation, in contact with skin or if swallowed.
- Toxic: Danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
- S: 7-16-36/37-45

**Safety Statements:** Keep container tightly closed. Keep away from sources of ignition — no smoking. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**US CLASSIFICATION AND LABEL TEXT**

- Risk Statements: Toxic by inhalation, in contact with skin and if swallowed.
- Toxic: Danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. Irritating to eyes and skin.
- Safety Statements: Keep container tightly closed. Keep away from sources of ignition — no smoking. Take precautionary measures against static discharges. Avoid contact with skin. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**US Statements:** Target organ(s): Eyes. Kidneys.

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