



# OXFORD BIOMEDICAL RESEARCH

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## Material Safety Data Sheet

### Microplate Creatinine Assay Kit

#### Product # CR 01

The information contained herein is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Oxford Biomedical Research, Inc. shall not be held liable for any damage resulting from handling or from contact with this product.

See our catalog for additional terms and conditions of sale.

Hazards identified with this product are those associated with the following components:

Component	Name
S 1	Creatinine Standard 1 (10 mg/dL)
S 2	Creatinine Standard 2 ( 3 mg/dL)
R 1	Yellow Reagent (0.6% picric acid in sodium borate buffer)
R 2	Alkali Solution (1 N NaOH)
R 3	Acid Reagent (a mixture of sulfuric and acetic acids)

**S1 CREATININE STANDARD 1 (10 mg/dL)**

**S2 CREATININE STANDARD 2 ( 3 mg/dL)**

We are not aware of any hazards associated with these products.

**R1 YELLOW REAGENT (0.6% picric acid in sodium borate buffer)**

**PICRIC ACID**

#### SECTION 1 CHEMICAL IDENTIFICATION

Picric acid

#### SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

CAS #: 88-89-1

EC NO: 201-865-9



**SECTION 3 HAZARDS IDENTIFICATION**

Precautionary statements:

Flammable

Toxic

Explosive when dry.

Risk of explosion by shock, friction, fire or other sources of ignition.

Forms very sensitive explosive metallic compounds.

Toxic by inhalation, in contact with skin and if swallowed.

Sensitizer

Causes Irritation.

Target organs: blood and kidneys

Avoid contact with metals.

Keep container tightly closed.

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.

**SECTION 4 FIRST-AID MEASURES**

In case of contact, immediately flush eyes or skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes.

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

When swallowed, wash out the mouth with water provided the person is conscious. Call a physician.

Wash contaminated clothing before reuse.

**SECTION 5 FIRE FIGHTING MEASURES**

Extinguishing media: Water spray, carbon dioxide, dry chemical powder or appropriate foam.

Special Firefighting procedures:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Flammable solid.

Use water spray to cool fire-exposed containers.

Unusual fire and explosions hazards:

Emits toxic fumes under fire conditions.

Dry material is dangerously explosive.

If material is involved in a fire, evacuate area and allow to burn. If not involved in fire, keep wet.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

Evacuate area.

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves

Contain spill. If solids are present, add water to the solids without stirring. Recover spilled materials into a non-metallic water

impervious container. Keep spilled material wet with water. Do not allow to dry!

Use a spill response pad or pillow damp with water to absorb remaining spilled material. Place pads or pillows in a non-metallic



impervious container with water added. Dispose of spilled material and absorbent pads or pillows in accordance with governmental requirement.

Ventilate area and wash spill site after material pickup is complete.

**SECTION 7 EXPOSURE CONTROLS / PERSONAL PROTECTION**

Wear appropriate NIOSH / MSHA-approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

Safety shower and eye bath.

Use only in a chemical fume hood.

Do not breath dust.

Do not get in eyes, on skin or on clothing.

Avoid prolonged or repeated exposure.

Wash thoroughly after handling.

Material must be wet at all times

Keep container tightly closed.

Keep away from heat, sparks and open flame.

Store in a cool, dry place.

**SECTION 8 PHYSICAL AND CHEMICAL PROPERTIES**

Appearance and odor: Moist yellow powder

Physical properties:

Melting point 121°C to 123°C

Vapor pressure 1MM 195°C

Vapor density 7.9

**SECTION 9 STABILITY AND REACTIVITY**

Conditions to avoid: Heat and contact with metals

Incompatibilities:

Strong oxidizing agents

Strong Bases

Reducing agents

Heavy metals

Heavy metal salts

Ammonia

Hazardous combustion or decomposition products:

Toxic fumes of carbon monoxide, carbon dioxide and nitrogen oxides

Additional Information:

Picric acid forms salts with many metals (such as lead, iron, zinc, nickel, copper, etc.) some of which are rather sensitive to heat, friction or impact and should be considered dangerously sensitive. The salts formed with ammonia



and amines and the molecular complexes with aromatic hydrocarbons are, in general, not so sensitive. Contact of picric acid with concrete floors may form the friction-sensitive calcium salt. Dry mixtures of picric acid and aluminum powder are inert. But the addition of water causes ignition after a delay dependent upon the quantity added. Storage conditions and records of purchase dates should be maintained for each container. Material older than 2 years should be disposed. Inspect and add water every six months as needed. Rotate containers to distribute water every three months.

**SECTION 10 TOXICOLOGICAL INFORMATION**

Acute effects:

Toxic by inhalation, ingestion or skin absorption.

Causes eye and skin irritation.

Material is irritating to mucous membranes and upper respiratory tract,

May cause allergic respiratory and skin reactions.

May cause discoloration of the skin

Target organs are the blood, kidneys and liver

Additional information:

Picric acid dust causes sensitization dermatitis. This usually occurs on the face, especially around the mouth and the sides of the nose. The condition progresses from edema through the formation of papules and vesicles to ultimate desquamation. Inhalation of high concentrations of dust has caused unconsciousness, weakness, muscle pain and kidney problems. Swallowing picric acid may cause a bitter taste, headache, dizziness, nausea, vomiting and diarrhea. High doses may cause destruction of the red blood cells and damage to the kidneys and liver with blood in the urine.

**SECTION 11 DISPOSAL CONSIDERATIONS**

Contact a licensed professional waste disposal service to dispose of this material.

Observe all federal, state and local environmental regulations.

**SECTION 12 TRANSPORT INFORMATION**

Contact Oxford Biomedical Research, Inc. or your freight carrier for transportation information.

**BORAX**

**SECTION 1 CHEMICAL IDENTIFICATION**

Borax

**SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS**

CAS #: 1303-96-4

MF: B4NA207

**SECTION 3 HAZARDS IDENTIFICATION**

Precautionary Statements:

Harmful

Possible risk of harm to the unborn child.



Possible risk of impaired fertility.

Irritation to eyes, respiratory system and skin.

Target organs: Central nervous system, kidneys

In case of accident or if you feel unwell, seek medical advice immediately

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.

Do not breathe the dust.

#### **SECTION 4 FIRST-AID MEASURES**

When swallowed, wash out mouth with water if the person is conscious. Call a physician.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

In case of contact, immediately wash skin with soap and copious amounts of water.

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

#### **SECTION 5 FIRE FIGHTING MEASURES**

Extinguishing media: Water spray, carbon dioxide, dry chemical powder or appropriate foam.

Special firefighting procedures: Wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual fire and explosions hazards: Emits toxic fumes under fire conditions.

#### **SECTION 6 ACCIDENTAL RELEASE MEASURES**

Evacuate area.

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Sweep up, place in a bag and hold for waste disposal.

Avoid raising dust.

Ventilate area and wash spill site after material pickup is complete.

#### **SECTION 7 EXPOSURE CONTROLS / PERSONAL PROTECTION**

Wash contaminated clothing before reuse.

Wash thoroughly after handling.

Wear appropriate NIOSH / MSHA approved respirator, chemical-resistant gloves, safety goggles and other protective clothing.

Use only in a chemical fume hood.

Safety shower and eye bath.

Do not breathe dust.

Do not get in eyes, on skin or on clothing.

Avoid prolonged or repeated exposure.

Keep container tightly closed.

Store in a cool, dry place.



**SECTION 8      PHYSICAL AND CHEMICAL PROPERTIES**

Physical properties:

Solubility: water

Specific gravity: 1.73

pH: 9.0 – 9.5

**SECTION 9      STABILITY AND REACTIVITY**

Incompatibilities:

Reacts violently with: potassium, acid anhydrides

Hazardous combustion or decomposition products: Boron oxides

**SECTION 10     TOXICOLOGICAL INFORMATION**

Acute effects:

Toxicity reported for borates in humans: Ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, erythematous lesions on the skin and mucous membranes. Other symptoms include: circulatory collapse, tachycardia, cyanosis, delirium, convulsions and coma. Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams. Material is irritant to the mucous membranes and upper respiratory tract. May be harmful by inhalation, ingestion or skin absorption. Causes eye and skin irritation.

Chronic effects:

Possible risk of congenital malformation in the fetus.

Overexposure may cause reproductive disorders based on tests with laboratory animals.

Target organs: central nervous system, kidneys and testes

**SECTION 11     DISPOSAL CONSIDERATIONS**

Contact a licensed professional waste disposal service to dispose of this material.

Observe all federal, state and local environmental regulations.

**SECTION 12     TRANSPORT INFORMATION**

Contact Oxford Biomedical Research, Inc. or your freight carrier for transportation information.

**R2 ALKALI SOLUTION (1 N NaOH)**

**SECTION 1      CHEMICAL IDENTIFICATION**

Sodium Hydroxide

**SECTION 2      COMPOSITION / INFORMATION ON INGREDIENTS**

CAS #: 1310-73-2

EC NO: 215-185-5



**SECTION 3 HAZARDS IDENTIFICATION**

Precautionary statements:

Corrosive

Causes Burns.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Immediately take off all contaminated clothing.

Wear suitable protective clothing, gloves and eye / face protection.

In case of an accident or if you feel unwell, seek medical advice immediately.

**SECTION 4 FIRST-AID MEASURES**

When swallowed, wash out mouth with water if the person is conscious. Call a physician.

Do not induce vomiting.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a

physician.

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the

eyelids with fingers. Call a physician.

**SECTION 5 FIRE FIGHTING MEASURES**

Extinguishing media: Dry chemical powder. Do not use water.

Special firefighting procedures:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual fire and explosions hazards: Emits toxic fumes under fire conditions.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Evacuate area.

Absorb on sand or vermiculite and place in closed containers for disposal.

Ventilate area and wash spill site after material pickup is complete.

**SECTION 7 EXPOSURE CONTROLS / PERSONAL PROTECTION**

Safety shower and eye bath.

Use only in a chemical fume hood.

Wash contaminated clothing before reuse.

Discard contaminated shoes.

Wash thoroughly after handling.

Do not breathe vapor.

Do not get in eyes, on skin or on clothing.



Avoid prolonged or repeated exposure.  
Use NIOSH / MSHA approved respirator.  
Use chemical resistant gloves.  
Use chemical safety goggles  
Faceshield (8 inch minimum)  
Keep container tightly closed.  
Store in a cool, dry place.

**SECTION 8      PHYSICAL AND CHEMICAL PROPERTIES**

Appearance and odor:   Liquid

**SECTION 9      STABILITY AND REACTIVITY**

This compound is stable

Conditions to avoid:   Sensitive to air and absorbs CO<sub>2</sub> from air.

Incompatibilities:

Acids  
Organic materials  
Chlorinated solvents  
Aluminum  
Phosphorus  
Tin / tin oxides  
Zinc

Hazardous combustion or decomposition products:   Sodium / sodium oxides

Hazardous polymerization will not occur.

**SECTION 10    TOXICOLOGICAL INFORMATION**

Acute effects:

Causes burns.

May be harmful if absorbed through the skin.

May be harmful if inhaled.

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract, eyes and skin.

May be harmful if swallowed.

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache and nausea.

**SECTION 11    DISPOSAL CONSIDERATIONS**

Contact a licensed professional waste disposal service to dispose of the material.





Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state and local environmental regulations

**SECTION 12 TRANSPORT INFORMATION**

Contact Oxford Biomedical Research, Inc. or your freight carrier for transportation information.

**R3 ACID REAGENT (a mixture of sulfuric and acetic acid)**

**SULFURIC ACID**

**SECTION 1 CHEMICAL IDENTIFICATION**

Sulfuric acid

**SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS**

CAS #: 7664-93-9

EC NO: 231-639-5

**SECTION 3 HAZARDS IDENTIFICATION**

Precautionary statements:

Highly toxic

May cause cancer by inhalation.

Toxic by inhalation

Causes burns.

Target organs: Teeth and cardiovascular system

In case of accident or if you fell unwell, seek medical advice immediately.

Wear suitable protective clothing, gloves and eye / face protection.

Do not breathe vapor.

**SECTION 4 FIRST-AID MEASURES**

When swallowed, wash out the mouth with water if the person is conscious. Call a physician.

Do not induce vomiting.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

If case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**SECTION 5 FIRE FIGHTING MEASURES**

Extinguishing media: Noncombustible

Use extinguishing media appropriate to surrounding fire conditions.



Special firefight procedures:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual fire and explosions hazards:

Emits toxic fumes under fire conditions.

Strong dehydrating agent which may cause ignition of finely divided materials on contact.

#### **SECTION 6 ACCIDENTAL RELEASE MEASURES**

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Cover with dry lime or soda ash, then pick up and keep in a closed container and hold for waste disposal.

Ventilate area and wash spill site after material pickup is complete.

Evacuate Area

#### **SECTION 7 EXPOSURE CONTROLS / PERSONAL PROTECTION**

Safety shower and eye bath.

Use only in a chemical fume hood.

Wash contaminated clothing before reuse.

Discard contaminated shoes.

Wash thoroughly after handling.

Do not breathe vapor.

Do not get in eyes, on skin or on clothing.

Avoid prolonged or repeated exposure.

Use NIOSH / MSHA approved respirator.

Use chemical resistant gloves.

Use chemical safety goggles.

Faceshield (8 inch minimum).

Keep container tightly closed.

Store in a cool, dry place.

#### **SECTION 8 PHYSICAL AND CHEMICAL PROPERTIES**

Appearance and odor: Clear, colorless liquid

Physical properties:

Vapor pressure: 1MM 145.8°C

Specific gravity: 1.840

Vapor density: <.3 @ 25°C

#### **SECTION 9 STABILITY AND REACTIVITY**

This compound is stable.

Incompatibilities: Bases and halides

Hazardous combustion or decomposition products: Sulfur oxides and hydrogen sulfide gas



Hazardous polymerization will not occur.

**SECTION 10 TOXICOLOGICAL INFORMATION**

Acute effects:

Causes burns.

May be harmful if absorbed through the skin.

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract, eyes and skin.

Toxic if inhaled.

May be harmful if swallowed.

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache and nausea.

All the chemical physical and toxicological properties of this compound have not been thoroughly investigated.

Chronic effects: Carcinogenic

**SECTION 11 DISPOSAL CONSIDERATIONS**

Contact a licensed professional waste disposal service to dispose of the material.

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state and local environmental regulations

**SECTION 12 TRANSPORT INFORMATION**

Contact Oxford Biomedical Research, Inc. or your freight carrier for transportation information.

**ACETIC ACID**

**SECTION 1 CHEMICAL IDENTIFICATION**

Acetic acid glacial

**SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS**

CAS #: 64-19-7

EC NO: 200-580-7

**SECTION 3 HAZARDS IDENTIFICATION**

Precautionary statements:

Combustible

Corrosive

Causes sever burns



Harmful in contact with skin.

Lachrymator

Target organs: Teeth and kidneys

Keep away from sources of ignition – No smoking.

In case of an accident or if you feel unwell, seek medical advice immediately.

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.

#### **SECTION 4 FIRST-AID MEASURES**

When swallowed, wash out the mouth with water if the person is conscious. Call a physician.

Do not induce vomiting.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

If case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

#### **SECTION 5 FIRE FIGHTING MEASURES**

Extinguishing media: Carbon dioxide, dry chemical powder or appropriate foam.

Special firefight procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual fire and explosions hazards: Emits toxic fumes under fire conditions.

#### **SECTION 6 ACCIDENTAL RELEASE MEASURES**

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Cover with dry lime or soda ash, then pick up and keep in a closed container and hold for waste disposal.

Ventilate area and wash spill site after material pickup is complete.

Evacuate Area

#### **SECTION 7 EXPOSURE CONTROLS / PERSONAL PROTECTION**

Safety shower and eye bath.

Use only in a chemical fume hood.

Wash contaminated clothing before reuse.

Discard contaminated shoes.

Wash thoroughly after handling.

Do not breathe vapor.

Do not get in eyes, on skin or on clothing.

Avoid prolonged or repeated exposure.

Use NIOSH / MSHA approved respirator.

Use chemical resistant gloves.



Use chemical safety goggles.  
Faceshield (8 inch minimum).  
Keep container tightly closed.  
Store in a cool, dry place.

**SECTION 8      PHYSICAL AND CHEMICAL PROPERTIES**

Appearance and odor:   Liquid

Physical properties:

Boiling point:      117-118°C

Melting point:     16.2°C

Flashpoint:        40°C

Explosion limits in air:   Upper 19.9 %                    Lower 4 %

Vapor pressure:   11.4 MM

Specific gravity:  1.049

Vapor density:    2.07 G/L

**SECTION 9      STABILITY AND REACTIVITY**

This compound is stable.

Incompatibilities:

Protect from moisture.

Oxidizing Agents

Soluble carbonates and phosphates

Hydroxides

Oxides

Metals

Peroxides

Permanganates

Amines

Alcohols

Hazardous combustion or decomposition products:

Carbon monoxide and carbon dioxide

Hazardous polymerization will not occur.

**SECTION 10    TOXICOLOGICAL INFORMATION**

Acute effects:

Causes burns.

Harmful if absorbed through the skin.

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract, eyes and skin.

May be harmful if inhaled.

May be harmful if swallowed.



Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache and nausea.

Ingestion or inhalation of concentrated acetic acid causes damage to tissue of the respiratory and digestive tracts.

Symptoms include: hematemesis, bloody diarrhea, edema and or perforation of the esophagus and pylorus, hematuria, anuria, uremia,

albuminuria, hemolysis, convulsions, bronchitis, pulmonary edema, pneumonia, cardiovascular collapse, shock and death.

Direct contact or exposure to high concentrations of vapor with skin or eyes can cause: erythema, blisters, tissue destruction with

slow healing, skin blackening, hyperkeratosis, fissures, corneal erosion, opacification, iritis, conjunctivitis and possible blindness.

All the chemical physical and toxicological properties of this compound have not been thoroughly investigated.

Target organs: Teeth and kidneys

#### **SECTION 11 DISPOSAL CONSIDERATIONS**

Contact a licensed professional waste disposal service to dispose of the material.

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state and local environmental regulations

#### **SECTION 12 TRANSPORT INFORMATION**

Contact Oxford Biomedical Research, Inc. or your freight carrier for transportation information.