OXFORD BIOMEDICAL RESEARCH
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MSDS: Total Glutathione Assay kit
Product No. GT 20

This product, GT 20 –Total Glutathione 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

Chemical Identification:

Glutathione Oxidoreductase

Chemical Name:	Glutathione Oxidoreductase
Cas No.:	9001-48-3
Physical Appearance:	Solid/ yellow powder

Metaphosphoric Acid

Common Name:	MPA
Chemical Name:	Metaphosphoric Acid
Chemical Formula:	$(HPO_3)_n$
Cas No.:	372667-86-0
Physical Appearance:	Clear liquid

β-$NADPH_2$

Common Name:	β-$NADPH_2$, β-Nicotinamide Adenine Dinucleotide Phosphate (reduced)
Chemical Name:	β-$NADPH_2$, β-Nicotinamide Adenine Dinucleotide Phosphate (reduced)
Chemical Formula	$C_{21}H_{30}N_7O_{17}P_3$
Cas No.:	2646-71-1
Physical Appearance:	Solid/ whitepowder

DTNB

Common Name:	DTNB
Chemical Name:	5,5'-Dithiobis(2-nitrobenzoic acid)
Chemical Formula	$C_{14}H_8N_2O_8S_2$
Cas No.:	69-78-3
Physical Appearance:	Solid/ yellow powder

Hazardous Identification:

Glutathione Oxidoreductase

Emergency Overview:	Irritant Eyes, respiratory system and skin.
Target Organs:	N/A

Metaphosphoric Acid

Emergency Overview:	Corrosive Causes burns
Target Organs:	Non-discriminatory upon contact

β-$NADPH_2$

Emergency Overview:	Irritant Eyes, respiratory system and skin.
Target Organs:	Liver and Nervous system

DTNB

Emergency Overview:	Irritant Eyes, respiratory system and skin.
Target Organs:	N/A

First Aid Measures:

Glutathione Oxidoreductase

Oral Exposure:	Wash out mouth with water provided the person is conscious – contact a physician.
Inhalation Exposure:	Remove to fresh air If not breathing give artificial respiration. Give oxygen if breathing is difficult. Contact a physician.
Dermal Exposure:	Immediately wash with soap and water.
Eye Exposure:	Flush with water for minimum of 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Contact a physician.

Metaphosphoric Acid

Oral Exposure:	Wash out mouth with water if person is conscious. Do not induce vomiting. Contact a physician.
Inhalation Exposure:	Remove to fresh air. If not breathing give artificial respiration. Give oxygen if breathing is difficult. Contact a physician.
Dermal Exposure:	Remove contaminated clothing and flush affected areas with water for 15 minutes. Contact a physician.
Eye Exposure:	Flush with water for minimum of 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Contact a physician.

β-$NADPH_2$

Oral Exposure:	Wash out mouth with water provided the person is conscious – contact a physician.
Inhalation Exposure:	Remove to fresh air If not breathing give artificial

	respiration. Give oxygen if breathing is difficult. Contact a physician.
Dermal Exposure:	Immediately wash with soap and water.
Eye Exposure:	Flush with water for minimum of 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Contact a physician.

DTNB

Oral Exposure:	Wash out mouth with water provided the person is conscious – contact a physician.
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Dermal Exposure:	Immediately wash with soap and water.
Eye Exposure:	Flush with water for minimum of 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Contact a physician.

Fire Fighting Measures:

Glutathione Oxidoreductase

Autoignition Temp:	N/A
Extinguishable Media:	Use media appropriate for surrounding conditions
Firefighting:	Wear self-contained breathing apparatus and protective clothing and equipment

Metaphosphoric Acid

Autoignition Temp:	N/A
Extinguishable Media:	Carbon dioxide, dry chemical powder or appropriate foam.
Firefighting:	Wear self-contained breathing apparatus and protective clothing and equipment Emits toxic fumes under fire conditions

β-$NADPH_2$

Autoignition Temp:	N/A
Extinguishable Media:	Water spray, carbon dioxide, dry chemical powder or appropriate foam.
Firefighting:	Wear self-contained breathing apparatus and protective clothing and equipment Emits toxic fumes under fire conditions

DTNB

Autoignition Temp:	N/A
Extinguishable Media:	Water spray, carbon dioxide, dry chemical powder or appropriate foam.
Firefighting:	Wear self-contained breathing apparatus and protective clothing and equipment Emits toxic fumes under fire conditions

Accidental Release Measures:

Glutathione Oxidoreductase

Personal Precautions:	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
Clean Up:	Sweep up, place in a plastic bag and hold for waste disposal. Avoid the promotion of dust. Ventilate the area and wash spill site after material has been removed.

Metaphosphoric Acid

Leak or Spill:	Evacuate the area
Personal Precautions:	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
Clean Up.	Soak up material with paper towel and place in a bag for waste disposal. Ventilate area and wash spill site after material has been removed.

β-$NADPH_2$

Personal Precautions:	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
Clean Up:	Sweep up, place in a plastic bag and hold for waste disposal. Avoid the promotion of dust. Ventilate the area and wash spill site after material has been removed.

DTNB

Personal Precautions:	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
Clean Up:	Sweep up, place in a plastic bag and hold for waste disposal. Avoid the promotion of dust. Ventilate the area and wash spill site after material has been removed.
Personal Precautions:	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Handling and Storage:

Glutathione Oxidoreductase

User Exposure:	Avoid contact with eyes, skin and clothing. Avoid inhalation. Avoid prolonged or repeated exposure.
Storage:	Keep container closed. Store away from heat.

Metaphosphoric Acid

User Exposure:	Avoid contact with eyes, skin and clothing. Avoid inhalation. Avoid prolonged or repeated exposure.
Storage:	Keep container closed. Store away from heat.

β-$NADPH_2$

User Exposure:	Avoid contact with eyes, skin and clothing. Avoid inhalation. Avoid prolonged or repeated exposure.
Storage:	Keep container closed. Store in a cool dry place.

DTNB

User Exposure:	Avoid contact with eyes, skin and clothing. Avoid inhalation. Avoid prolonged or repeated exposure.
Storage:	Keep container closed. Store away from heat.

Stability and Reactivity:

Glutathione Oxidoreductase

Stability:	Stable
Materials to Avoid:	Strong oxidizing agents
Hazardous Decomposition Products:	Not known
Hazardous Polymerization:	Will not occur

Metaphosphoric Acid

Conditions to Avoid:	Sensitive to moisture
Materials to Avoid:	Strong bases, metals, nitromethane.
Hazardous Decomposition Products:	Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine
Hazardous Polymerizations:	Will not occur

β-$NADPH_2$

Stability:	Stable
Materials to Avoid:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide, nitrogen oxides, phosphorus oxides.
Hazardous Polymerization:	Will not occur

DTNB

Stability:	Stable
Materials to Avoid:	Strong oxidizing agents, strong bases
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide, nitrogen oxides, sulfur oxides.
Hazardous Polymerization:	Will not occur

Toxicological Information:

Glutathione Oxidoreductase

Exposure:	
Skin:	Irritation/ harmful if absorbed
Eye:	Irritation
Inhalation:	May be harmful if inhaled. May irritate mucous membranes and respiratory tract.
Ingestion:	May be harmful if swallowed
Sensitization:	Prolonged or repleated exposure can cause allergic reactions.
Symptoms of Exposure:	Not thoroughly investigated

Metaphosphoric Acid

Exposure:	
Skin:	Causes burns, May be harmful if absorbed through the skin
Eye:	Causes burns
Inhalation:	Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion:	May be harmful if swallowed
Symptoms of Exposure:	Burning, coughing, wheezing, shortness of breath, headache, nausea, spasm, inflammation, edema, chemical pneumonitis upon inhalation may result. Burning sensation of the dermis. Not thoroughly

	investigated.

β-NADPH$_2$

Exposure:	
Skin:	Irritation. May be harmful if absorbed.
Eye:	Irritation
Inhalation:	Irritating to the respiratory tract.
Ingestion:	May be harmful if swallowed.
Sensitization:	Not thoroughly investigated.
Target Organs:	Nerves, liver, heart
Symptoms of Exposure:	CNS depression, GI disturbances, narcotic effect, convulsions

DTNB

Exposure:	
Skin:	Irritation. May be harmful if absorbed.
Eye:	Irritation
Inhalation:	Irritating to the respiratory tract.
Ingestion:	May be harmful if swallowed.
Sensitization:	Not thoroughly investigated.
Symptoms of Exposure:	Not thoroughly investigated
LD50:	2080 mg/Kg mouse