SAFETY DATA SHEET

Cat. No. CTG-BK032C, Myeloperoxidase Colorimetric Activity Assay Kit ISSUE DATE MAY 3, 2019

1: PRODUCT AND COMPANY IDENTIFICATION
PRODUCT NAME: Myeloperoxidase Colorimetric Activity Assay Kit
PRODUCT CODES: Cat. No. CTG-BK032C
MANUFACTURER: Celltechgen LLC
ADDRESS: 14780 Memorial Drive, Suite 210, Houston, TX 77079, United States
EMERGENCY PHONE: 1-877-994-4100
CHEMTREC PHONE:
OTHER CALLS: 281-531-7940
Email: info@celltechgen.com

SECTION 2. HAZARDS IDENTIFICATION

Component	Description	Volume	Safety Information
MPO Assay Buffer	Proprietary Buffer	25 ml	No hazards
DTNB Probe	In DMSO	75 µl	See below
TCEP	Liquid	75 µl	See below
MPO Substrate	Liquid (contains H2O2)	50 ul	See below
Stop Mix	Liquid	20 µl	No hazards
MPO Positive Control	Lyophilized	n/a	No hazards

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.

DTNB:
Emergency Overview
OSHA Hazards: Irritant
GHS Classification: Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity – single exposure (Category 3)
GHS Label elements, including precautionary statements
Pictogram:
Signal word: Warning
Hazard statement(s): H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
Precautionary statement(s): P261 Avoid breathing dust/fumes/gas/mist/vapors/spray.

P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.

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:** May be harmful if absorbed through skin. Causes skin irritation.
- **Eyes:** Causes eye irritation.

Ingestion: May be harmful if swallowed.

TCEP:

Emergency Overview

OSHA Hazards: Irritant

GHS Classification: Skin irritation (Category 2)
Serious eye irritation (Category 1)

GHS Label elements, including precautionary statements

Pictogram:

Signal word: Warning

Hazard statement(s): H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s): P261 Avoid breathing dust/fumes/gas/mist/vapors/spray.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.

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:** May be harmful if absorbed through skin. Causes skin irritation.
- **Eyes:** Causes eye irritation.

Ingestion: May be harmful if swallowed.

Hydrogen peroxide:

Emergency Overview

OSHA Hazards: Oxidizer, Target organ effect, Harmful by ingestion, Corrosive

Target Organs: Eyes, Skin, Respiratory system

GHS Classification: Oxidizing liquids (Category 1)

Acute toxicity, Oral (Category 4)
Acute toxicity, Inhalation (Category 5)
Skin corrosion (Category 1A)
Serious eye damage (Category 1)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram:

Signal word: Danger

Hazard statement(s): H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statement(s): Wash skin thoroughly after handling.
P280 Wear eye protection/ face protection.
P280 Wear protective gloves.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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.

HMIS Classification
- **Health hazard:** 3
- **Chronic health hazard:** *
- **Flammability:** 0
- **Physical hazards:** 2

NFPA Rating
- **Health Hazard:** 3
- **Fire:** 0
- **Reactivity Hazard:** 2
- **Special Hazard:** OX

Potential Health Effects
- **Inhalation:** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
- **Skin:** May be harmful if absorbed through skin. Causes skin burns.
- **Eyes:** Causes eye burns.
- **Ingestion:** Harmful if swallowed.

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_2H_6OS
5,5'-Dithiobis(2-nitrobenzoic acid) [DTNB]	69-78-3	200-714-4	396.35	C14H8N2O8S2
TCEP	51805-45-9		286.65	C9H15O6P · HCl
Hydrogen peroxide	7722-84-1	231-765-0	34.01	H_2O_2

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: Take off contaminated clothing and shoes immediately. 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. Continue rinsing during transport to hospital.
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 inhalation of vapor or mist. Avoid contact with skin and eyes.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Recommended storage temperature: -20 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

DMSO:

Components	CAS-No.	Value	Control parameters	Basis
Dimethyl sulfoxide	67-68-5	TWA	250 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

Hydrogen peroxide

Components	CAS-No.	Value	Control parameters	Basis
Hydrogen peroxide	7722-84-1	TWA	1 ppm	USA. ACGIH Threshold Values (TLV)
Remarks:	Eye, skin, & upper respiratory tract irritation. Confirmed animal carcinogen with unknown relevance to humans.			
		TWA	1 ppm 1.4 mg/m^3	USA. NIOSH Recommended Exposure Limits
		TWA	1 ppm 1.4 mg/m^3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 – Limits for Air Contaminants
	The value in mg/m^3 is approximate.			
		TWA	1 ppm 1.4 mg/m^3	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000

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	DTNB	TCEP	Hydrogen peroxide
Appearance:	Clear liquid	Light yellow powder	liquid	Clear liquid

pH:	No data available	No data available	6.0-8.0	No data available
Water Solubility:	Completely miscible	No data available	No data available	No data available
Other Solubility:	No data available	No data available	No data available	No data available
Boiling Point (°C):	189 ^{o}C (372 ^{o}F)	No data available	No data available	No data available
Melting Point (°C):	16-19 ^{o}C (61-66 ^{o}F)	240-250 °C (464-473 oF)	No data available	No data available
Flash Point (°C):	87 ^{o}C (189 ^{o}F)	No data available	No data available	No data available
Ignition Temperature (°C):	301 ^{o}C (574 ^{o}F)	No data available	No data available	No data available
Density:	1.1 g/ml	No data available	No data available	1.11 g/cm3

SECTION 10. STABILITY AND REACTIVITY

Property	**DMSO**	**DTNB**	TCEP	Hydrogen peroxide
Chemical stability:	Stable under recommended storage conditions			
Conditions to avoid:	Heat, flames, sparks	No data available	No data available	Not data available
Materials to avoid:	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing agents	Strong oxidizing agents, strong bases	Strong oxidizing agents	Zinc, powdered metals, iron, copper, nickel, brass, iron, and iron salts
Hazardous decomposition products:	Carbon oxides, sulfur oxides	Carbon oxides, nitrogen oxides, sulfur oxides	No data available	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

DTNB:
Acute toxicity: LD50 Intraperitoneal – mouse – 2,080 mg/kg
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
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): no data available
Specific target organ toxicity – repeated exposure (GHS): no data available
Potential Health Effects
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: May be 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.

Additional information: RTECS: DG9650000
Hydrogen peroxide:
Acute toxicity: no data available
Skin corrosion/irritation: no data available
Serious eye damage/eye irritation: no data available
Respiratory or skin sensitization: no data available
Germ cell mutagenicity: no data available
Carcinogenicity:
IARC: 3 – Group 3: Not classifiable as to its carcinogenicity to humans (Hydrogen peroxide)
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. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin: May be harmful if absorbed through skin. Causes skin burns.
Eyes: Causes eye burns.
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

SECTION 12. ECOLOGICAL INFORMATION

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

Hydrogen peroxide:
Persistence and degradability: no data available
Toxicity: no data available
Bioaccumulative potential: no data available
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.

SECTION 13. DISPOSAL CONSIDERATIONS

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solven and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

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.

Hydrogen peroxide:
DOT (US): UN-Number: 2014, Class: 5.1 (8), Packing group: II;
Proper shipping name: Hydrogen peroxide, aqueous solutions
Marine pollutant: No; Poison Inhalation Hazard: No
IMDG: UN-Number: 2014, Class: 5.1 (8), Packing group: II; EMS-No: F-H, S-Q;
Proper shipping name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION;
Marine pollutant: No
IATA: UN-Number: 2014, Class: 5.1 (8), Packing group: II;
Proper shipping name: Hydrogen peroxide, aqueous solution

SECTION 15. REGULATORY INFORMATION

OSHA Hazards: DTNB: Irritant
DMSO: Combustibile liquid, Target organ effect
Hydrogen peroxide: Oxidizer, Target organ effect, Harmful by ingestion, Corrosive
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 II, Section 313.
SARA 311/312 Hazards: DTNB: Acute Health Hazard
DMSO: Fire Hazard, Chronic Health Hazard
Hydrogen peroxide: Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components: Hydrogen peroxide, CAS-No. 7722-84-1; Revision Date: 1993-04-24
Pennsylvania Right To Know Components: Dimethyl sulfoxide CAS-No. 67-68-5
Hydrogen peroxide, CAS-No. 7722-84-1; Revision Date: 1993-04-24
Tris(2-carboxyethyl)phosphine hydrochloride: CAS-No. 51805-45-9
DTNB, CAS-No. 69-78-3
New Jersey Right To Know Components: Dimethyl sulfoxide CAS-No. 67-68-5
Hydrogen peroxide, CAS-No. 7722-84-1; Revision Date: 1993-04-24
Tris(2-carboxyethyl)phosphine hydrochloride: CAS-No. 51805-45-9
DTNB, CAS-No. 69-78-3
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
DTNB	R36/37/38	S22, S24/25, S36/37/39, S45
TCEP	R34	S26, S36/37/39, S45
Hydrogen peroxide	R22, R41	S26, S39

SECTION 16. OTHER INFORMATION

DISCLAIMER:
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and re-lease and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8 / 1711