Material Safety Data Sheet
according to EC-Regulation No. 1272/2008
updated: 01/2018 Version: 1.0

Section I - Product and Company Information

<table>
<thead>
<tr>
<th>Product Name/Chemical Name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>MW</th>
<th>Chemical Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,5'-Dithiobis (2-nitrobenzoic acid) [DTNB]</td>
<td>69-78-3</td>
<td>200-714-4</td>
<td>396.35</td>
<td>C14H8N2O8S2</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>200-578-6</td>
<td>46.07</td>
<td>C2H6O</td>
</tr>
</tbody>
</table>

Section II – Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Volume</th>
<th>Safety Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrxR Assay Buffer</td>
<td>Proprietary Buffer</td>
<td>25 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>TNB Standard</td>
<td>Lyophilized</td>
<td>1 vial</td>
<td>No hazards</td>
</tr>
<tr>
<td>DTNB</td>
<td>Lyophilized</td>
<td>1 vial</td>
<td>See below</td>
</tr>
<tr>
<td>NADPH</td>
<td>Lyophilized</td>
<td>1 vial</td>
<td>No hazards</td>
</tr>
<tr>
<td>TrxR Positive Control</td>
<td>Lyophilized protein</td>
<td>1 vial</td>
<td>No hazards</td>
</tr>
<tr>
<td>TrxR Inhibitor</td>
<td>Lyophilized</td>
<td>1 vial</td>
<td>No hazards</td>
</tr>
</tbody>
</table>

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.

**Section IV – 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:** 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.

**If swallowed:** DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Section V – Fire-Fighting Measures**

**Condition of flammability:** Not flammable or combustible.

**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Hazardous combustion products:** Hazardous combustion products formed under fire conditions — carbon oxides, nitrogen oxides.

**Section VI – Accidental Release Measures**

**Personal precautions:** Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**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 VII – Handling and Storage**

**Precautions for safe handling** Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Flash back possible over considerable distance. Container explosion may occur under fire conditions. Use explosion-proof equipment. Keep away from sources of ignition — no smoking. Take measures to prevent the buildup of electrostatic charge.

**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 VIII – Exposure Controls/Personal Protection

DTNB:
Contain no substances with occupational exposure limit values.

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
   Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Section IX – Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>DTNB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Light Yellow Powder</td>
</tr>
<tr>
<td>pH:</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>No data available</td>
</tr>
<tr>
<td>Other Solubility:</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point (°C):</td>
<td>240-250 °C (464-473 °F)</td>
</tr>
<tr>
<td>Flash Point (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Ignition Temperature (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Density:</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Section X – Stability and Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>DTNB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability:</td>
<td>Stable under recommended storage conditions</td>
</tr>
<tr>
<td>Conditions to avoid:</td>
<td>No data available</td>
</tr>
<tr>
<td>Materials to avoid:</td>
<td>Strong oxidizing agents, Strong bases</td>
</tr>
<tr>
<td>Hazardous decomposition products:</td>
<td>Carbon oxides, nitrogen oxides, sulfur oxides</td>
</tr>
</tbody>
</table>

Section XI – Toxicological Information

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

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**Section XII – Ecological Information**

**DTNB:**
- **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

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**Section XIII – Disposal Information**

**Product:** Observe all federal, state and local environmental regulations.
**Contaminated packaging:** Dispose of as unused product.

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**Section XIV – Transport Information**

**DTNB:**
- **DOT (US):** Not dangerous goods
- **IMDG:** Not dangerous goods
- **IATA:** Not dangerous goods

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**Section XV – Regulatory Information**

**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

**Massachusetts Right To Know Components:** No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components:** **DTNB**, CAS-No. 69-78-3

**New Jersey Right To Know Components:** **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:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Risk Phrases</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTNB</td>
<td>R36/37/38</td>
<td>S22, S24/25, S36/37/39, S45</td>
</tr>
</tbody>
</table>

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**Section XVI - Disclaimer**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. PromoCell shall not be held liable for any damage resulting from handling or from contact with the above product.

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**FOR IN VITRO RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC PROCEDURES.**

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