1 Identification

- **Product identifier**
- **Trade name:** DTNB/EGTA
- **Article number:** 765032
- **Application of the substance / the mixture**
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:** Cayman Chemical Co.
  1180 E. Ellsworth Rd.
  Ann Arbor, MI 48108
  USA
- **Information department:** Product safety department
- **Emergency telephone number:**
  During normal opening times: +1 (734) 971-3335
  US/CANADA: 800-424-9300
  Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - GHS07
  - Skin Irrit. 2 H315 Causes skin irritation.
  - Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements**
  The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**
  - GHS07

- **Signal word** Warning
- **Hazard statements**
  - H315 Causes skin irritation.
  - H319 Causes serious eye irritation.
Trade name: DTNB/EGTA

· Precautionary statements
  P264 Wash thoroughly after handling.
  P280 Wear protective gloves / eye protection / face protection.
  P302+P352 If on skin: Wash with plenty of water.
  P321 Specific treatment (see on this label).
  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.
  P362+P364 Take off contaminated clothing and wash it before reuse.
  P337+P313 If eye irritation persists: Get medical advice/attention.

· Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 2
    Fire = 0
    Reactivity = 0
  · HMIS-ratings (scale 0 - 4)
    HEALTH 2
    FIRE 0
    REACTIVITY 0

· Other hazards
  · Results of PBT and vPvB assessment
    · PBT: Not applicable.
    · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures
  · Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:
  | CAS: 77-86-1 | Tris base | 13.7% |
  | CAS: 69-78-3 | DTNB     | 4.475% |

· Other ingredients:
  | CAS: 67-42-5 | EGTA     | 81.825% |

4 First-aid measures

· Description of first aid measures
  · General information: Immediately remove any clothing soiled by the product.
  · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  · After skin contact: Immediately wash with water and soap and rinse thoroughly.
  · After eye contact:
    Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  · After swallowing: If symptoms persist consult doctor.
5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    Use fire fighting measures that suit the environment.
    A solid water stream may be inefficient.
- Special hazards arising from the substance or mixture: No further relevant information available.
- Advice for firefighters
  - Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Not required.
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up: Pick up mechanically.
- Reference to other sections
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.
- Protective Action Criteria for Chemicals

| PAC-1: | 77-86-1 Tris base | 18 mg/m³ |
| PAC-2: | 77-86-1 Tris base | 190 mg/m³ |
| PAC-3: | 77-86-1 Tris base | 1,200 mg/m³ |

7 Handling and storage

- Handling:
  - Precautions for safe handling
    - No special precautions are necessary if used correctly.
    - Avoid breathing dust/fume/gas/mist/vapours/spray.
    - Avoid prolonged or repeated exposure.
    - Keep away from sources of ignition.
    - Take precautionary measures against static discharge.
  - Information about protection against explosions and fires: No special measures required.
- Conditions for safe storage, including any incompatibilities
  - Storage: Store in accordance with information listed on the product insert.
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.
· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
  The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** The lists that were valid during the creation were used as basis.
· **Exposure controls**
· **Personal protective equipment:**
  · **General protective and hygienic measures:**
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Avoid contact with the eyes and skin.
  · **Breathing equipment:** Not required.
  · **Protection of hands:**

  ![Protective gloves](image)

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  · **Material of gloves**
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
  · **Penetration time of glove material**
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  · **Eye protection:**

  ![Tightly sealed goggles](image)

### 9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**
  · **Form:** Lyophilized powder
### Trade name: DTNB/EGTA

| · Color: | According to product specification |
| · Odor: | Characteristic |
| · Odor threshold: | Not determined. |
| · pH-value: | Not applicable. |
| · Change in condition | |
| · Melting point/Melting range: | Undetermined. |
| · Boiling point/Boiling range: | Undetermined. |
| · Flash point: | Not applicable. |
| · Flammability (solid, gaseous): | Not determined. |
| · Decomposition temperature: | Not determined. |
| · Auto igniting: | Product is not selfigniting. |
| · Danger of explosion: | Product does not present an explosion hazard. |
| · Explosion limits: | |
| · Lower: | Not determined. |
| · Upper: | Not determined. |
| · Vapor pressure: | Not applicable. |
| · Density: | Not determined. |
| · Relative density | Not determined. |
| · Vapor density | Not applicable. |
| · Evaporation rate | Not applicable. |
| · Solubility in / Miscibility with | |
| · Water: | Soluble. |
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity: | |
| · Dynamic: | Not applicable. |
| · Kinematic: | Not applicable. |
| · Solvent content: | |
| · VOC content: | 0.00 % |
| · Solids content: | 100.0 % |
| · Other information | No further relevant information available. |

### 10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided**: No decomposition if used according to specifications.
- **Possibility of hazardous reactions**: No dangerous reactions known.
- **Conditions to avoid**: No further relevant information available.
- **Incompatible materials**: No further relevant information available.
- **Hazardous decomposition products**: No dangerous decomposition products known.
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification:
      - 77-86-1 Tris base
        - Oral
          - LD50: 3,000 ml/kg (mouse)
          - 5,500 mg/kg (mouse)
          - 5,900 mg/kg (rat)
        - Intrapерitoneal
          - LD50: 3,350 mg/kg (mouse)
        - 69-78-3 DTNB
          - Intrapерitoneal LD50: 2,080 mg/kg (mouse)
  - Primary irritant effect:
    - on the skin: Irritant to skin and mucous membranes.
    - on the eye: Irritating effect.
    - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    - The product shows the following dangers according to internally approved calculation methods for preparations:
      - Irritant
  - Carcinogenic categories
    - IARC (International Agency for Research on Cancer)
      - None of the ingredients is listed.
    - NTP (National Toxicology Program)
      - None of the ingredients is listed.
    - OSHA-Ca (Occupational Safety & Health Administration)
      - None of the ingredients is listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Additional ecological information:
  - General notes:
    - Water hazard class 1 (Self-assessment): slightly hazardous for water
    - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.
13 Disposal considerations

- Waste treatment methods
  - Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
  - Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA: not regulated

- UN proper shipping name
  - DOT, IMDG, IATA: not regulated

- Transport hazard class(es)
  - DOT, ADN, IMDG, IATA: not regulated

- Packing group
  - DOT, IMDG, IATA: not regulated

- Environmental hazards: Not applicable.

- Special precautions for user: Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

- UN "Model Regulation": not regulated

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - No further relevant information available.

- Sara

  - Section 355 (extremely hazardous substances): None of the ingredients is listed.

  - Section 313 (Specific toxic chemical listings): None of the ingredients is listed.

- TSCA (Toxic Substances Control Act):
  - All components have the value ACTIVE.

- Hazardous Air Pollutants
  - None of the ingredients is listed.

- Proposition 65

  - Chemicals known to cause cancer: None of the ingredients is listed.
Safety Data Sheet
acc. to OSHA HCS

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(Contd. from page 7)

· Chemicals known to cause reproductive toxicity for females:
  None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:
  None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:
  None of the ingredients is listed.

· Carcinogenic categories
  · EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  · TLV (Threshold Limit Value)
    None of the ingredients is listed.
  · NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
  · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to
the material as packaged. If this product is combined with other materials, deteriorates, or becomes
contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes
no responsibility for incidental or consequential damages, including lost profits, arising from the use
of these data. It shall be the user’s responsibility to develop proper methods of handling and personal
protection based on the actual conditions of use. While this SDS is based on technical data judged to
be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of
the information contained herein.

· Department issuing SDS: Environment protection department.
· Contact:
· Date of preparation / last revision 03/29/2022 / -
· Abbreviations and acronyms:
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NIOSH: National Institute for Occupational Safety
  OSHA: Occupational Safety & Health
  TLV: Threshold Limit Value
  PEL: Permissible Exposure Limit
  REL: Recommended Exposure Limit
  Skin Irrit. 2: Skin corrosion/irritation – Category 2
  Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  * Data compared to the previous version altered.