Synaptic Systems

Rudolf-Wissell-Str. 28
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

# DMNP-EDTA

**Cat.No. 510 016; , 5 mg**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 5 mg DMNP-EDTA dihydrate as powder.<br>HPLC analysis<br>Store at -20° C. Protect material from light always. |
| Name | 1-(4,5-dimethoxy-2-nitrophenyl)-1,2-diaminoethane-N,N,N',N'-tetraacetic acid.<br><br>MSDS |
| Molecular formula | $C_{18}H_{23}N_3O_{12}$ + $H_2O$. chemical structure |
| Molecular weight | 509.42 |
| Remarks | When reconstituted with $H_2O$, the hardly soluble free acid is obtained. Chose the appropriate base for neutralization to obtain the salt suitable for your application |

**TO BE USED IN VITRO / FOR RESEARCH ONLY**
**NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS**

Calcium and magnesium are important signalling molecules. They are involved in the regulation of neurotransmission, gene-expression, muscle contraction, and more.
**DMNP-EDTA** (also known as DM-nitrophen®) is a photolabile derivative of EDTA and therefore functions as either caged $Ca^{2+}$ or caged $Mg^{2+}$ with a preference for $Ca^{2+}$.
Photolysis by illumination with UV-light decreases the affinity for $Ca^{2+}$ and $Mg^{2+}$ ions and they become physiologically available immediately. By this approach regulatory effects of calcium and magnesium on cellular processes can be studied.

## Selected General References

DM-nitrophen AM is caged magnesium.
Ellis-Davies GC
Cell calcium (2006) 39(6): 471-473.

Kinetic properties of DM-nitrophen binding to calcium and magnesium.
Faas GC, Karacs K, Vergara JL, Mody I
Biophysical journal (2005) 88(6): 4421-33.

Magnesium binding to DM-nitrophen and its effect on the photorelease of calcium.
Ayer RK, Zucker RS
Biophysical journal (1999) 77(6): 3384-93.

Kinetic properties of DM-nitrophen and calcium indicators: rapid transient response to flash photolysis.
Escobar AL, Velez P, Kim AM, Cifuentes F, Fill M, Vergara JL
Pflugers Archiv : European journal of physiology (1997) 434(5): 615-31.

Aspects of calcium-activated chloride currents: a neuronal perspective.
Scott RH, Sutton KG, Griffin A, Stapleton SR, Currie KP
Pharmacology & therapeutics (1995) 66(3): 535-65.

Rudolf-Wissell-Str. 28
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

# MATERIAL SAFETY DATA SHEET

## 1-(4,5-dimethoxy-2-nitrophenyl)-1,2-diaminoethane-N,N,N',N'-tetraacetic acid (DMNP-EDTA)

**Catalog Number:** 510 016
**Unit Size:** 5 mg DMNP-EDTA dihydrate powder
**Manufacturer/Supplier:**
Synaptic Systems GmbH; Rudolf-Wissell-Str. 28, 37079 Goettingen/Germany
Phone: +49-551-50556-0, Fax: +49-551-50556-384; web: http://www.sysy.com
Technical Support: Phone: +49-551-50556-358, e-mail: support@sysy.com

### 1. Product Identification / Composition / Information on Ingredients

**CAS Number:** 117367-86-9
**Name:** 1-(4,5-dimethoxy-2-nitrophenyl)-1,2-diaminoethane-N,N,N',N'-tetraacetic acid (DMNP-EDTA, DM-nitrophen®)
**Molecular Formula:** $C_{18}H_{23}N_3O_{12} + H_2O$
**Molecular Weight:** 509.42

### 2. Hazards Identification

**Emergency Overview:** Caution - substance not fully tested. We recommend handling all chemicals with caution.
**Potential Health Effects:** Not determined
**Inhalation:** Not determined
**Ingestion:** Not determined
**Skin Contact:** Not determined
**Eye Contact:** Not determined
**Chronic Exposure:** Not determined
**Target Organs:** Not determined

### 3. First Aid Measures

Potentially harmful. Avoid prolonged or repeated exposure. Wash thoroughly after handling. If eye or skin contact occurs, wash affected area with water for 15 minutes and seek medical advice.
If inhaled, move to fresh air and seek medical advise. If swallowed, seek medical advise.

### 4. Fire Fighting Measures

Use chemical powder or appropriate foam extinguisher

### 5. Accidental Release Measure

Use appropriate protective equipment and methods to clean up spilled substances. Absorb spill onto appropriate material. Collect and dispose of all waste in accordance with applicable laws.

### 6. Handling and Storage

Store at = -20°C. **Protect material from light at all times.**

### 7. Exposure Controls / Personal Protection

Wear appropriate protective gloves, clothing and eyewear. Follow safe laboratory practices
**ACGIH/OSHA Permissible Exposure Limit Data:** Not determined

### 8. Physical and Chemical Properties

**Appearance:** white powder
**Odor:** No information found
**Solubility in Water:** High
**Specific Gravity:** No information found
**Boiling Point:** No information found
**Melting Point:** No information found
**Flash Point:** No information found
**Vapor Pressure:** No information found

### 9. Stability and Reactivity

**Thermal Decomposition:** No decomposition if used according to specifications.
**Dangerous Reactions:** No dangerous reactions identified.
**Dangerous Products of Decomposition:** None identified

## 10. Toxicological Information

**RTECS Number:** None known
**Toxicity:** No data on toxicity of this product found.
**Health Hazards:** No reported health hazards for this product found.
**Carcinogenicity:** Not listed by NTP, IARC or OSHA.

## 11. Ecological Information

Do not allow product to reach ground water, water course, or sewage system.

## 12. Disposal Considerations

Dispose of according to local, state, or national laws and regulations.

## 13. Transport Information

Not regulated. The product can be shipped as aqueous solution at ambient temperatures without loss of stability/activity.

## 14. Regulatory Information

**US Toxic substances Control Act (TSCA):** Not listed
**EEC EINECS Number:** Not identified
**EEC Risk Statements:** Not determined
**Other Country Regulations:** None identified

## 15. Other Information

This material is only for research purposes and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural and cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. The above information is correct to the best of our knowledge. Users should make independent decisions regarding completeness of the information based on all sources available. Synaptic Systems GmbH shall not be held liable for any damage resulting from handling or contact with the above product.

**TO BE USED IN VITRO / FOR RESEARCH ONLY**