Specification

## N-Ethylmaleimide *BioChemica* A2251

| | |
|---|---|
| **Solubility:** | approx. 1 g/L |
| **Physical Description:** | Solid |
| **Product Code:** | A2251 |
| **Product Name:** | N-Ethylmaleimide *BioChemica* |
| **Specifications:** | Assay (GC): min. 99 %<br>Heavy metals: max. 0.001 %<br>Sulfated ash: max. 0.05 % |
| **Hazard pictograms** |  |
| **UN:** | 2928 |
| **Class/PG:** | 6.1(8)/II |
| **ADR:** | 6.1(8)/II |
| **IMDG:** | 6.1(8)/II |
| **IATA:** | 6.1(8)/II |
| **WGK:** | 3 |
| **Storage:** | 2-8°C |
| **Signal Word:** | Danger |
| **GHS Symbols:** | GHS05<br>GHS06 |
| **H Phrases:** | H300<br>H311<br>H314 |

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Specification

## N-Ethylmaleimide *BioChemica* A2251

| | |
|---|---|
| | H317 |
| **P Phrases:** | P262<br>P280<br>P305+P351+P338 |
| **Molecular Formula:** | $C_6H_7NO_2$ |
| **M:** | 125.13 g/mol |
| **CAS:** | 128-53-0 |
| **EINECS:** | 204-892-4 |
| **CS:** | 29251995 |

### Comment

N-Ethylmaleimide (NEM) is a so-called sulfhydryl-reagent and employed for the examination of sulfhydryl groups in the reactive center of enzymes (1). The reaction with the sulfur groups is stable, even against acid hydrolysis. During the reaction of NEM and a sulfhydryl group S-(Ethylsuccinimido)-cysteine is formed. Acid hydrolysis transforms this product into S-Succinylcysteine and ethylamine and this substances can be determined quantitatively. NEM has an absorption maximum at 305 nm, which is suppressed by binding to a sulfhydryl group. The pH value (pH 6.0 - 7.0) is critical for the reaction, because outside this pH range, NEM hydrolysis to N-Ethylmaleaminic acid (1).The use of NEM as a protease inhibitor (cysteine(thiol) proteases) is limited, because reducing agents (DTT, DTE, β-mercaptoethanol etc.) inactivate it. These reducing agents are part of all standard homogenisation buffers, at especially high concentrations for the preparation of plant extracts (2). Protease-inhibitor stock solutions are prepared at a concentration of 2 M (200X concentrated). Dissolve 25 g NEM per 100 ml ethanol and dispense in aliquots and store at -20°C (3).

### Bibliography

(1)Riordan, J.F. & Vallee, B. L. (1972) *Methods Enzymol.* **25**, 449-456Reactions with *N*-Ethylmaleimide and *p*-Mercuribenzoate. (2)Gegenheimer, P. (1990) *Methods Enzymol.* **182**, 174-193Preparation of plant extracts. (3)Ausubel, F.A., Brent, R., Kingston, R.E., Moore, D.D., Seidman, J.G., Smith, J.A. & Struhl, K. (eds.) 2000. *Currrent Protocols in Molecular Biology*. Page 17.2.6 Suppl. 22 John Wiley & Sons, New York. (4)Akabas, M.H. *et al.* (1992) *Science* **258**, 307-310Acetylcholine receptor channel-structure investigation with cystein exchange mutants.

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