

**Melatonin**  
**Sigma Prod. No. M5250**  
**Storage at -20°C**

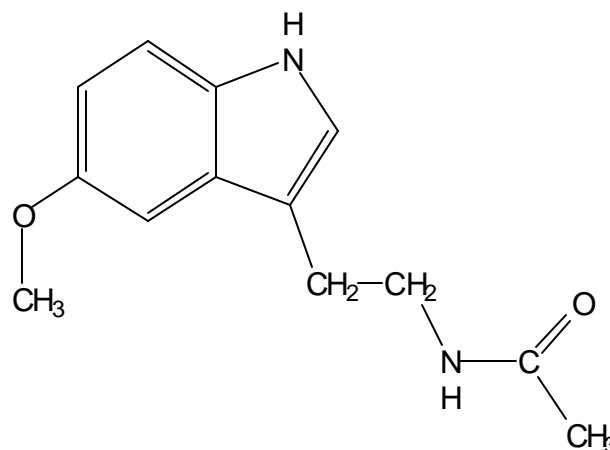
**Cas Number:** 73-31-4  
**Synonym:** N-Acetyl-5-methoxytryptamine

### Physical Description

Molecular formula:  $C_{13}H_{16}N_2O_2$   
Molecular weight: 232.3  
Melting point: 116-118°C<sup>1</sup>  
 $E^{mM} = 27.50$  (223 nm);  $E^{mM} = 6.30$  (278 nm)<sup>1</sup>

### Solubility / Solution Stability

Melatonin is soluble in ethanol at least to 50 mg/mL, giving a clear to slightly hazy, faint yellow solution.<sup>1</sup> It is slightly soluble in water, benzene and very slightly soluble in petroleum ether.<sup>2</sup> It is reported to be soluble in Ringer's solution if first dissolved in propylene glycol or ethanol, then diluted.<sup>3</sup> Solutions are light sensitive and subject to oxidation.



Melatonin appears to decompose in ethanol solution on standing. After two weeks, TLC on silica gel indicated two additional components in the solution. Gas chromatography failed to indicate anything other than melatonin, even after standing for several months.<sup>4</sup> Sigma's supplier responded that for a saturated solution in isopropanol:water (30:70), after two weeks at 0-5°C, the solution showed only one spot by TLC. However, after 2 weeks at 40°C, several spots were observed by TLC. These spots were not identified.<sup>5</sup>

### References

1. *Merck Index*, 12th ed., Budavari, S., Ed. (Merck & Co., 1996), #5758.
2. *Data for Biochemical Research*, 3rd ed., Dawson, R.M.C. et al. Eds. (Oxford Press) p. 2.
3. Barchas, J. et al., *Nature*, 214, 919 (1967).
4. Pennington, S.N., *J. Chromatography*, 32, 406 (1968).
5. Sigma supplier data.

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