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## Product Information

### 4-Methylumbelliferone

Product Number **M 1381**

Store at Room Temperature

Replacement for Product Code **12,872-4**

#### Product Description

Molecular Formula:  $C_{10}H_8O_3$

Molecular Weight: 176.2

CAS Number: 90-33-5

Melting point: 194-195 °C,<sup>1</sup> 185-186 °C<sup>2</sup>

pK<sub>a</sub>: 7.79 (7-hydroxyl group)<sup>3</sup>

Fluorescent Properties

Excitation wavelength: 365 nm (0.15 M glycine buffer, pH 10.2),<sup>4</sup> 380 nm (water)<sup>5</sup>

Emission wavelength: 445 nm (0.15 M glycine buffer, pH 10.2),<sup>4</sup> 454 nm (water)<sup>5</sup>

Synonyms: Hymecromone, 7-hydroxy-4-methylcoumarin, 4-MU<sup>1</sup>

4-Methylumbelliferone is a fluorescent indicator; it is colorless at pH 7.0 and exhibits a blue fluorescence at pH 7.5.<sup>6</sup> The fluorescence intensity of 4-MU is pH-dependent and increases to a maximum at pH 10 (plateau above pH 10).<sup>7</sup> The fluorescence at pH 10.3 is approximately 100 times as intense as at pH 7.<sup>4</sup> The formation of 4-MU can be followed by difference absorption spectrometry at 347 nm or by fluorimetric measurements at pH 10.<sup>8</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

4-MU is soluble in methanol (50 mg/ml) with heating. It is also reported to be soluble in glacial acetic acid, slightly soluble in ether or chloroform, and practically insoluble in cold water.<sup>1</sup>

#### Storage/Stability

The stability of the fluorescence of this compound has been reported. At pH 10.0, fluorescence is constant for at least one hour; at pH 10.32, fluorescence is stable for at least 12 hours, and at pH 11.76 (glycine buffer) there is a rapid drop in fluorescence stability.<sup>7</sup>

#### References

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