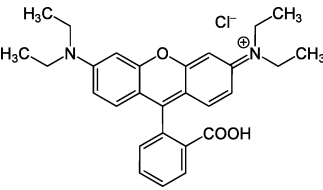


# Rhodamine B

Rhodamine B	
	
Identifiers	
CAS number	81-88-9 <sup>[1]</sup> ✓
PubChem	6694 <sup>[2]</sup>
ChemSpider	6439 <sup>[3]</sup> ✓
KEGG	C19517 <sup>[4]</sup> ✗
ChEBI	CHEBI:52334 <sup>[5]</sup> ✓
ChEMBL	CHEMBL428971 <sup>[6]</sup> ✓
Jmol-3D images	Image 1 <sup>[7]</sup>
Properties	
Molecular formula	C <sub>28</sub> H <sub>31</sub> ClN <sub>2</sub> O <sub>3</sub>
Molar mass	479.02
Appearance	red to violet powder
Melting point	210–211 °C (Decomposes)
Solubility in water	~50 g/L
Hazards	
MSDS	MSDS <sup>[8]</sup>
Except where noted otherwise, data are given for materials in their standard state (at 25 °C (77 °F), 100 kPa)	
✗ (verify) <sup>[9]</sup> (what is: ✓ / ✗ ?)	
Infobox references	

**Rhodamine B** /ˈroʊdəmiːn/ is a chemical compound and a dye. It is often used as a tracer dye within water to determine the rate and direction of flow and transport. Rhodamine dyes fluoresce and can thus be detected easily and inexpensively with instruments called fluorometers. Rhodamine dyes are used extensively in biotechnology applications such as fluorescence microscopy, flow cytometry, fluorescence correlation spectroscopy and ELISA.

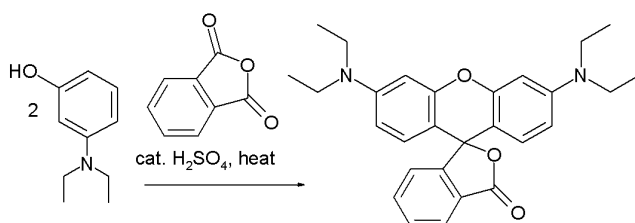
Rhodamine B is used in biology as a staining fluorescent dye, sometimes in combination with auramine O, as the auramine-rhodamine stain to demonstrate acid-fast organisms, notably *Mycobacterium*.

Rhodamine B is tunable around 610 nm when used as a laser dye.<sup>[10]</sup> Its luminescence quantum yield is 0.65 in basic ethanol, 0.49 in ethanol, 1.0, and 0.68 in 94% ethanol. The fluorescence yield is temperature dependent.

## Solubility

The solubility of Rhodamine B in water is ~50 g/L. However, the solubility in acetic acid solution (30 vol.%) is ~400 g/L. Chlorinated tap water decomposes rhodamine B. Rhodamine B solutions adsorb to plastics and should be kept in glass.<sup>[11]</sup>

## Synthesis

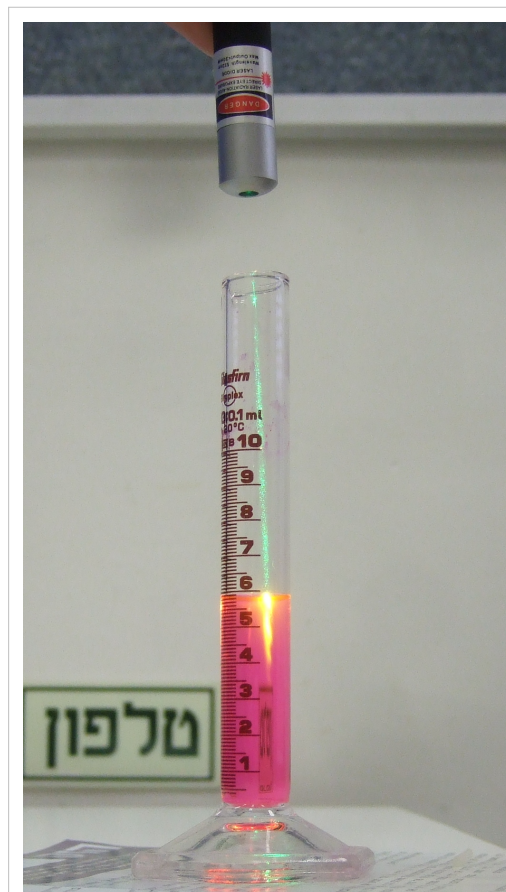


## Other uses

Rhodamine B is being tested for use as a biomarker in oral rabies vaccines for wildlife, such as raccoons, to identify animals that have eaten a vaccine bait. The rhodamine is incorporated into the animal's whiskers and teeth.

It is also often mixed with herbicides to show where they have been used.

Rhodamine B (BV10) is mixed with Quinacridone Magenta (PR122) to make the bright pink watercolor known as Opera Rose.<sup>[12]</sup>



An example of Beer–Lambert law, a green laser lighting in a solution of Rhodamine 6B, the beam becomes weaker as it travels through the dye.

## Safety and health

In California, Rhodamine B is suspected to be carcinogenic and thus products containing it must contain a warning on its label.<sup>[13]</sup>

In New Jersey, MSDS files state that there is limited evidence of carcinogenicity in laboratory animal, and no evidence at all in humans.<sup>[14]</sup>

## References

- [1] <http://www.commonchemistry.org/ChemicalDetail.aspx?ref=81-88-9>
  - [2] <http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?cid=6694>
  - [3] <http://www.chemspider.com/Chemical-Structure.6439.html>
  - [4] <http://www.kegg.jp/entry/C19517>
  - [5] <https://www.ebi.ac.uk/chebi/searchId.do?chebiId=52334>
  - [6] <https://www.ebi.ac.uk/chembl/db/index.php/compound/inspect/CHEMBL428971>
  - [7] <http://chemapps.stolaf.edu/jmol/jmol.php?model=CCN%28CC%29C1%3DCC2%3DC%28C%3DC1%29C%28%3DC3C%3DCC%28%3D%5BN%2B%5D%28CC%29CC%29C%3DC3O2%29C4%5BC1-%5D>
  - [8] [http://msds.chem.ox.ac.uk/RH/rhodamine\\_B.html](http://msds.chem.ox.ac.uk/RH/rhodamine_B.html)
  - [9] <http://en.wikipedia.org/w/index.php?title=Special:ComparePages&rev1=464381782&page2=Rhodamine+B>
  - [10] Rhodamine B (<http://omlc.ogi.edu/spectra/PhotochemCAD/html/rhodamineB.html>)
  - [11] *Detection and prevention of leaks from dams* By Antonio Plata Bedmar and Luís Araguás Araguás, Taylor & Francis, 2002, ISBN 90-5809-355-7
  - [12] <http://www.handprint.com/HP/WCL/waterc.html>
  - [13] Naval Jelly msds with Rhodamine B ([http://www.brown.edu/Departments/Visual\\_Art/documents/NavalJelly.pdf](http://www.brown.edu/Departments/Visual_Art/documents/NavalJelly.pdf))
  - [14] J. T. Baker Rhodamine B MSDS (<http://hazard.com/msds/mf/baker/baker/files/r5400.htm>)
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