

# PRODUCT INFORMATION



## Ruthenium Red

Item No. 14339

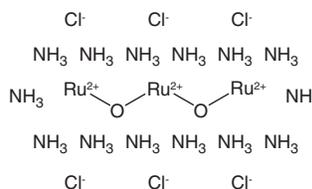
**CAS Registry No.:** 11103-72-3  
**Synonyms:** Ammoniated Ruthenium Oxychloride,  
C.I. 77800

**MF:**  $H_{42}N_{14}O_2Ru_3 \cdot 6Cl$   
**FW:** 786.4

**Supplied as:** A crystalline solid

**Storage:** -20°C

**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Ruthenium red is supplied as a crystalline solid. A stock solution may be made by dissolving the ruthenium red in water. We do not recommend storing the aqueous solution for more than one day.

### Description

Ruthenium red is a polycationic dye that inhibits sarcoplasmic reticulum Ca<sup>2+</sup> release, blocks Ca<sup>2+</sup> uptake and release from mitochondria, and prevents Ca<sup>2+</sup> release from ryanodine-sensitive intracellular stores in skeletal and cardiac muscle ( $K_{1/2}$  = 16 nM - 5.9 μM, depending on Ca<sup>2+</sup> concentration).<sup>1</sup> Additionally, ruthenium red binds to anionic sites of cellular components, predominantly to surface glycoconjugates, and can be used as a marker of negative binding sites related to cellular transport, barrier, or receptor functions.<sup>2</sup>

### References

1. Xu, L., Tripathy, A., Pasek, D.A., *et al.* Ruthenium red modifies the cardiac and skeletal muscle Ca<sup>2+</sup> release channels (ryanodine receptors) by multiple mechanisms. *J. Biol. Chem.* **274**(46), 32680-32691 (1999).
2. El-Saggan, A.H. and Uhrík, B. Improved staining of negative binding sites with ruthenium red on cryosections of frozen cells. *Gen. Physiol. Biophys.* **21**(4), 457-461 (2002).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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