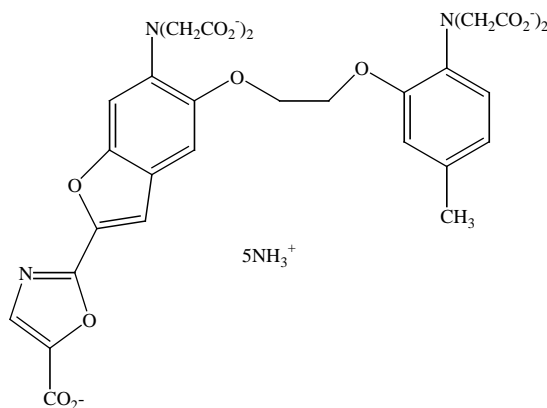


PRODUCT AND SAFETY DATA SHEET

PRODUCT NAME: FURA-2, Pentaammonium salt**CATALOG #** 50030**MOLECULAR INFORMATION:** C₂₉H₃₇N₈O₁₄
Mwt: 721**PROPERTIES:**

Color & Form	Light yellow solid
Purity	≥ 95% by HPLC
Solubility	Soluble in water or DMSO
Absorption/Emission	363 nm/512 nm (no Ca ²⁺); 335 nm/505 nm (high Ca ²⁺)
Extinction Coefficient	27,000 M ⁻¹ cm ⁻¹ (363nm, no Ca ²⁺); 35,000 M ⁻¹ cm ⁻¹ (335nm, high Ca ²⁺)

STORAGE AND HANDLING:

Stored at ≤ 4 °C upon receipt. Protect from light, especially when in solution.

APPLICATION:

Fura-2 is a widely used UV-excitable fluorescent calcium indicator developed by professor Roger Tsien.¹ It has been used in many cellular systems and applications particularly in microscopic imaging. Upon calcium binding, the fluorescent excitation maximum of the indicator undergoes a blue shift from 363 nm (Ca²⁺-free) to 335 nm (Ca²⁺-saturated), while the fluorescence emission maximum is relatively unchanged at ~510 nm. The indicator is typically excited at 340 nm and 380 nm respectively and the ratio of the fluorescent intensities corresponding to the two excitations is used in calculating the intracellular concentrations. Measurement of calcium concentration using this ratioing method avoids interference due to uneven dye distribution and photobleaching.²

Fura-2 ammonium, potassium, or sodium salt is membrane-impermeant but can be loaded into cells via microinjection or scrape loading.

The K_d for Fura-2 was reported to be 224 nM in cell-free media. However, the K_d is usually affected by a number of factors in cells including pH, protein concentrations, ionic strength, temperature and viscosity. Thus, calibration of the K_d is necessary for accurate measurement of intracellular calcium concentrations. For details on

**APPLICATION
(Continued)**

calibration, we recommend that you consult the references listed below (See refs 2-8). Biotium offers A-23187(**59001**), an ionophore that is commonly used for intracellular calibration of calcium indicators.

Biotium also offers EDC (**59002**, also known as EDAC), which can be used to fix calcium indicators in cells, if post histochemical studies are desired following physiological experiments.

Ref.: 1) *J. Biol. Chem.* **260**, 3440(1985); 2) Bright, G.R., et al, in *Fluorescence Microscopy of Living Cells in Culture, Part B, (Methods in Cell Biology, Vol. 30)*, Academic Press (1989) p. 157; 3) *Am. J. Physiol.* **261**, C1107(1991); 4) *Biophys. J.* **54**, 1089(1988); 5) *Biochem. Biophys. Res. Comm.* **177**, 184(1991); 6) *Cell Calcium* **11**, 85(1990); 7) *Cell Calcium* **12**, 279(1991); 8) *Neuropharmacol.* **34**, 1423(1995); 9) Denk, W. et al. *Science* **248**, 73(1990)

TOXICITY

unknown

FIRST AID:

Potentially harmful. Avoid prolonged or repeated exposure. Avoid getting in eyes, on skin, or on clothing. Wash thoroughly after handling. If eye or skin contact occurs, wash affected areas with plenty of water for 15 minutes and seek medical advice. In case of inhaling or swallowing, move individual to fresh air and seek medical advice immediately.

Disclaimer: *Materials from Biotium are sold for research use only, and are not intended for food, drug, household, or cosmetic use. Biotium is not liable for any damage resulting from handling or contact with this product.*