



Catalog #	Aliquot Size
V114-908-1000	1000 mg
V114-908-5000	5000 mg

## Verapamil HCl

Calcium Channel Blocker

Catalog # V114-908

Lot # N3425-10

CAS# 152-11-4

### Product Description

Molecular Formula:  $C_{27}H_{38}N_2O_4 \cdot HCl$

Appearance: White powder

Molecular Weight: 491.1

Purity: >98% (TLC); NMR (conforms)

Solubility: May be dissolved in water (25 mg/ml)

### Alternative name(s)

$\alpha$ -[3-[[2-(3,4-Dimethoxyphenyl)ethyl]methylamino]propyl]-3,4-dimethoxy- $\alpha$ -(1-methylethyl)benzeneacetonitrile, hydrochloride

### Storage and Stability

Store desiccated as supplied at ambient temperature for up to 3 years. Store solutions at -20°C for up to 3 months.

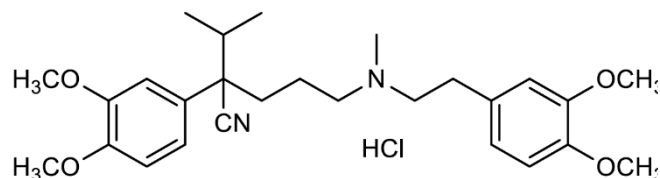
### Scientific Background

L-type calcium channel blocker (1). Clinically useful for the treatment of hypertension and coronary artery disease (2). Binds to and inhibits P-glycoprotein and reverses multidrug resistance in multidrug-resistant CHO cells (3,4). Induces autophagy (5).

### References

1. L Lacinova et al. J. Pharmacol. Exp. Ther. 1995 274:54
2. RN Brogdan and P Benfield Drugs 1996 51:792
3. AR Safa et al. J. Biol. Chem. 1987 262:7884
4. M Chatterjee et al. Cancer Res. 1990 50:2818
5. A Fleming Nat. Chem. Biol. 2011 7:9

### Molecular Structure



## Verapamil HCl

Calcium Channel Blocker

Catalog #	V114-908
CAS #	152-11-4
Lot #	N3425-10
Purity	>98% (TLC); NMR (conforms)
Format	White powder
Solubility	May be dissolved in water (25 mg/ml)
Storage & Shipping	Store desiccated as supplied at ambient temperature for up to 3 years. Store solutions at -20°C for up to 3 months. Product shipped at ambient temperature.

To place your order, please contact us by phone 1-(604)-232-4600, fax 1-604-232-4601 or by email: [orders@signalchem.com](mailto:orders@signalchem.com) or [IVD@signalchem.com](mailto:IVD@signalchem.com) - [www.signalchem.com](http://www.signalchem.com)

**FOR IN VITRO RESEARCH PURPOSES ONLY. NOT INTENDED FOR USE IN HUMAN OR ANIMALS.**

# SAFETY DATA SHEET

## Article 1 - Product Identification

**Product Name: Verapamil HCl****Catalog # V114-908**

*This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.*

Manufacturer's Name: SignalChem Biotech Inc.  
Street Address: 110-13120 Vanier Place  
City, Prov. Postal Code: Richmond, BC, V6V 2J2  
Fax: 604-232-4601  
EMERGENCY PHONE: 604-232-4600

## Article 2 - Hazardous Identification

### 2.1 Classification of Substance (GHS)

Acute Toxicity: Oral, Category 3

Acute Toxicity: Skin, Category 3

Acute Toxicity: Inhalation, Category 1

### 2.2 Label Elements

Classification according to Regulation (EC) No 1272/2008

**GHS Signal Word: DANGER****GHS Hazard Phrases:**

H301+H311	Toxic if swallowed or in contact with skin.
H330	Fatal if inhaled.

**GHS Precaution Phrases:**

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves / protective clothing.
P284	[In case of inadequate ventilation] wear respiratory protection.

**GHS Response Phrases:**

P301+P310	If swallowed: Immediately call a poison center/doctor.
P330	Rinse mouth.
P302+P352	If on skin: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a poison center/doctor if you feel unwell.
P320	Specific treatment is urgent (see on this label).
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose contents/container in accordance with local/regional/national/international regulations.

**GHS Storage and Disposal Phrases:**

Please refer to Section 7 for Storage and Section 13 for Disposal Information

**2.3 Other hazards:** To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

To place your order, please contact us by phone 1-(604)-232-4600, fax 1-604-232-4601  
or by email: [orders@signalchem.com](mailto:orders@signalchem.com) or [IVD@signalchem.com](mailto:IVD@signalchem.com) - [www.signalchem.com](http://www.signalchem.com)

**FOR IN VITRO RESEARCH PURPOSES ONLY. NOT INTENDED FOR USE IN HUMAN OR ANIMALS.**

# SAFETY DATA SHEET

## Article 3 – Composition/Information on Ingredients

### 3.1 Substance

**Product Name(s):** Verapamil HCl  
**Chemical Name:**  $\alpha$ -[3-[[2-(3,4-Dimethoxyphenyl)ethyl]methylamino]propyl]-3,4-dimethoxy- $\alpha$ -(1-methylethyl)benzeneacetonitrile, hydrochloride  
**Molecular Formula:**  $C_{27}H_{38}N_2O_4 \cdot HCl$   
**CAS Number:** 152-11-4  
**Concentration:** 100%

## Article 4 – First Aid

### 4.1 Description of First Aid Measures

**General:** Immediately remove any clothing soiled by the product. Remove breathing apparatus only after contaminated clothing have been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration.

**If Inhaled:** Supply fresh air or oxygen; call for doctor. In case of unconsciousness, place patient stably in side position for transportation.

**In Case of Skin Contact:** Immediately wash with water and soap and rinse thoroughly.

**In Case of Eye Contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

**If Swallowed:** Do not induce vomiting; immediately call for medical help.

**4.2 Important Symptoms and Effects:** May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects. No further relevant information available.

## Article 5 – Fire Fighting Measures

### 5.1 Extinguishing Media

Use fire fighting methods that suit the environment. A solid water stream may be insufficient.

### 5.2 Special Hazards

No further relevant information available.

### 5.3 Precautions for Fire Fighters

Mouth respiratory protective device.

## Article 6 – Accidental Release Measures

### 6.1 Personal Precautions

Not required.

### 6.2 Environmental Precautions

Do not allow to enter sewers/surface or ground water.

### 6.3 Methods for Containment and Clean-up

Dispose contaminated material as waste according to Article 13. Ensure adequate ventilation.

## Article 7 – Handling and Storage

### 7.1 Handling Precautions

Thorough dedusting. Ensure good ventilation/exhaustion at the workplace. Open and handle receptacle with care.

### 7.2 Safe Storage Measures

Keep receptacle tightly sealed. No special requirements.

## Article 8 – Exposure Controls/Personal Protection

### 8.1 Control Parameters

Contains no substances with occupational exposure limit values.

### 8.2 Specific Engineering Controls

Keep airborne levels low by using a fumehood or local exhaust.

### 8.3 Personal Protection

**Eye/Face Protection:** Not required.

**Skin Protection:** Use chemical resistant gloves. Remove and dispose of gloves properly after use. Wash hands thoroughly after use.

**Body Protection:** Wear a lab coat. Store protective clothing separately.

**Respiratory Protection:** In case of brief exposure or low pollution, use respiratory filter device. In case of intensive or longer exposure, use respiratory protective device that is independent of circulating air.

To place your order, please contact us by phone 1-(604)-232-4600, fax 1-604-232-4601  
or by email: [orders@signalchem.com](mailto:orders@signalchem.com) or [IVD@signalchem.com](mailto:IVD@signalchem.com) - [www.signalchem.com](http://www.signalchem.com)

**FOR IN VITRO RESEARCH PURPOSES ONLY. NOT INTENDED FOR USE IN HUMAN OR ANIMALS.**

# SAFETY DATA SHEET

## Article 9 – Physical and Chemical Properties

**Appearance:** White powder  
**Odour:** data not available  
**Odour Threshold:** data not available  
**pH:** data not available  
**Melting/Freezing Pt:** data not available  
**Boiling Pt:** data not available  
**Flash Pt:** data not available  
**Explosive Properties:** data not available  
**Solubility notes:** May be dissolved in water (25 mg/ml)

## Article 10 – Stability and Reactivity

**10.1 Stability:** Stable under recommended transport or storage conditions  
**10.2 Conditions to Avoid:** No further relevant information available.  
**10.3 Incompatibility – Materials to Avoid:** bases.  
**10.4 Hazardous Decomposition Products:** Carbon oxides (CO, CO<sub>2</sub>), hydrogen chloride, nitrogen oxides.

## Article 11– Toxicological Information

**11.1 Toxicological Effects:** The toxicological effects of this product have not been thoroughly studied.  
**Acute Toxicity:** Oral LDLO: 3.429 mg/kg (man). Oral LD50: 163 mg/kg (mouse), 108 mg/kg (rat). Intraperitoneal LD50: 60 mg/kg (rat). Subcutaneous LD50: 107 mg/kg (rat).  
**Chronic Toxicity:** Investigated as a drug.  
For complete information, see Registry of Toxic Effects of Chemical Substances (RTECS) entry. Verapamil HCl RTECS Number: YV8320000  
**Skin Corrosion/Irritation:** data not available  
**Eye Damage/Irritation:** data not available  
**Respiratory or Skin Sensitization:** data not available  
**Germ Cell Mutagenicity:** data not available  
**Carcinogenicity:** None according to NIOSH

## Article 12 – Ecological Information

**12.1 Toxicity**  
Water hazard class 1 (self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
**12.2 Degradability**  
Data not available

## Article 13 – Disposal Considerations

**13.1 Waste Treatment**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.

## Article 14 – Transport Information

**14.1 DOT**  
On passenger aircraft/rail: 100 kg. On cargo aircraft only: 200 kg  
**14.2 IMDG**  
5 kg. Code E1. Maximum net quantity per inner packaging: 30 g. Maximum net quantity per outer packaging: 1000 g.  
**14.2 IATA**  
Not dangerous goods

## Article 15 – Regulatory Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

To place your order, please contact us by phone 1-(604)-232-4600, fax 1-604-232-4601  
or by email: [orders@signalchem.com](mailto:orders@signalchem.com) or [IVD@signalchem.com](mailto:IVD@signalchem.com) - [www.signalchem.com](http://www.signalchem.com)

**FOR IN VITRO RESEARCH PURPOSES ONLY. NOT INTENDED FOR USE IN HUMAN OR ANIMALS.**

# SAFETY DATA SHEET

---

## Article 16 – Other Information

---

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. SignalChem shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalog for additional terms and conditions of sale.

To place your order, please contact us by phone 1-(604)-232-4600, fax 1-604-232-4601  
or by email: [orders@signalchem.com](mailto:orders@signalchem.com) or [IVD@signalchem.com](mailto:IVD@signalchem.com) - [www.signalchem.com](http://www.signalchem.com)

**FOR IN VITRO RESEARCH PURPOSES ONLY. NOT INTENDED FOR USE IN HUMAN OR ANIMALS.**