NEO-PYNAMIN®

TECHNICAL GRADE

AN INSECTICIDE FOR FORMULATING USE ONLY

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed, absorbed through skin or inhaled. Avoid skin contact or breathing vapor. Thoroughly wash skin or clothing with soap and water if they become contaminated.

ENVIRONMENTAL HAZARDS:

This product is toxic to fish. Do not discharge into lakes, streams, ponds or public waters unless in accordance with an NPDES Permit. For guidance contact your Regional Office of the Environmental Protection Agency.

STORAGE AND DISPOSAL

1. STORAGE
   In cool, dry area. Keep containers closed when not in use.
2. PESTICIDE DISPOSAL
   Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
3. CONTAINER DISPOSAL
   Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

ACTIVE INGREDIENTS:

Tetramethrin (1-cyclohexene-1, 2-dicarboximido) methyl 2, 2-dimethyl-3-(2-methylpropenyl) cyclopropanecarboxylate	95%
trans isomer ratio: 75% min.	
INERT INGREDIENTS:	5%
	100%

CAUTION

SEE SIDE PANEL FOR PRECAUTIONARY STATEMENTS

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED
Call a physician or a Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

IF ON SKIN
Wash with plenty of soap and water. Get medical attention.

ACCEPTED
16 NOV 1992
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under 10308-1
EPA Reg. No.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Refer to technical literature for formulation of Neo-Pynamin Technical Grade for end uses.

Formulators who use this product are responsible for providing data to support their own registrations.

Only for formulation into an insecticide. For (1) the following uses: space spray, fogger, crack and crevice spray, outdoor fogging spray; residual spray, direct spray and wasp and hornet spray; (2) uses for which USEPA has accepted the required data and/or citations of data that the formulator has submitted in support of registration; and (3) uses for experimental purposes that are in compliance with USEPA requirements.

NOTICE — READ CAREFULLY

CONDITIONS OF SALE:
Sumitomo (and seller) offer(s) this product for sale subject to, and buyer and all users are deemed to have accepted, the following conditions of sale and warranty which may only be varied by written agreement of a duly authorized representative of Sumitomo.

WARRANTY LIMITATION:
Sumitomo warrants that this product conforms to the chemical description in the directions for use on the label subject to the inherent risks referred to below. Sumitomo makes no other express warranties. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY and there are no warranties which extend beyond the description on the label hereof.

INHERENT RISKS:
The directions for use of this product are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks associated with use. Buyer assumes all risks associated with use or application of this product contrary to label instructions or resulting from extraordinary weather conditions.

LIMITATION OF LIABILITY:
In no case shall Sumitomo be liable for special, indirect or consequential damages resulting from the use or handling of this product and no claim of any kind shall be greater in amount than the purchase price of the product in respect of which such damages are claimed

EPA Registration No. 10308-1
EPA Est. No. 10308-JP-04

SUMITOMO CHEMICAL COMPANY, LTD
5-33 Kitahama 4-Chome, Chuo-ku
Osaka, Japan

Net Contents ____ Liters ____ Gal. Lot No. ____

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NEO-PYNAMIN®

Technical Manual

Sumitomo Chemical Company, Ltd.
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INTRODUCTION

In 1952 Sumitomo Chemical started the complete synthesis of allethrin on a commercial scale under the trade name of "PYNAMIN®". Allethrin, however, tends to give an unsatisfactory biological efficacy when used in aerosols or liquid sprays. This led to the development of "Neo-Pynamin®", a pyrethroid which is admirably suited to use in aerosols and liquid sprays.

This manual gives the chemical and physical properties of technical grade Neo-Pynamin and well as toxicological, formulation, use-pattern and safe handling information.

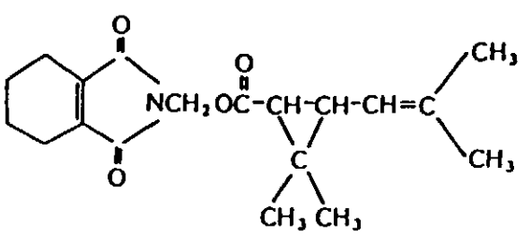
CHEMICAL NAME AND FORMULA

Common Name: Tetramethrin

C.A.S. Number: 7696-12-0

Chemical Name: (1-cyclohexene-1, 2-dicarboximido) methyl 2,2-dimethyl-3-(2-methylpropenyl) cyclopropanecarboxylate

Structural Formula:



Empirical Formula: $C_{19}H_{25}NO_4$

Molecular Weight: 331.41

CHEMICAL AND PHYSICAL PROPERTIES

Appearance: Yellowish-white powder

Odor: Faint characteristic odor

pH: 4.70 at 25°C

Melting Point: 68.00 - 70.03°C

Density: 1.1472 g/ml at 20°C

Vapor Pressure: 1.58×10^{-5} mm Hg at 25°C

Octanol/Water Partition Coefficient: 3.8×10^{4} at 25°C, log K_{ow} 4.58

Stability: Stable at least 2 years under normal storage conditions.

Solubility: Miscible with aromatic hydrocarbons of lower boiling points, partly miscible with alcohols, ketone, ethers and chlorinated hydrocarbons, slightly soluble in aliphatic hydrocarbons and glycols, and virtually insoluble in water at 25°C

Acetone > 2 g/ml
Ethanol 8.9 g/100 ml
Hexane 2.74 g/100 ml
Kerosene 3 g/100 ml
Methanol 9.19 g/100 ml
Methylene Chloride > 50 g/100 ml
MGK 264 25 g/100 ml

Water 1.83 ppm

ANALYTICAL METHOD

Gas Liquid Chromatographic Method (GLC)

Apparatus: Shimadzu Model GC-9A gas chromatograph equipped with a hydrogen flame-ionization detector or equivalent equipment.

GLC Conditions:

Column:	3mm i.d. x 1 m
Column Packing:	2% DEGS on Sumikasorb HP (80-100 mesh) and 5% Silicone DC QF-1 on Sumikasorb HP (80-100 mesh)
Column Temperature:	200° C

Standard Preparation: Prepare a solution of 2 g triphenyl phosphate in 100 mo of acetone as an internal standard. Prepare a solution of 0.1 g Neo-Pynamin (of known purity) per 5 ml of internal standard for Neo-Pynamin standard.

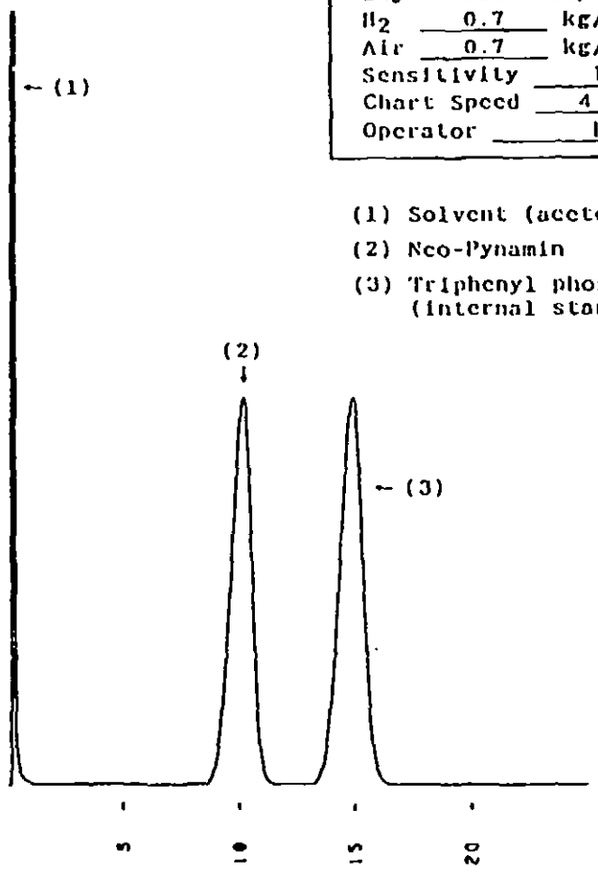
Sample Preparation: Accurately weigh a sample of about 0.1 g and add exactly 5 ml of internal standard.

Procedure: Inject 1 μl sample and standard solution several times to insure adequate injection reproducibility. Use peak height or area ratios for quantitation. Set retention time for Neo-Pynamin standard to ~ 10 minutes.

ANALYTICAL METHOD

Gas Liquid Chromatographic Method (GLC)

Gas Chromatogram (FID)
Date 1990.4.27
Apparatus Shimadzu GC-9A
Sample Neo-Pynamin 90304
20 mg/ml of Acetone , 1μ l
Column Glass , 3 mmϕ × 1 m
Liquid Phase 2 % DEGS
Support Sumikasorb HP
80 - 100 mesh
Temp. 200 °C (°C /min)
Carrier, N_2. 50 ml/min
Inj & Det. Temp. 250 °C
H_2 0.7 kg/cm^2
Air 0.7 kg/cm^2
Sensitivity 10^2 × 64
Chart Speed 4 mm/min
Operator R.T.



(1) Solvent (acetone)
(2) Neo-Pynamin
(3) Triphenyl phosphate (internal standard)

TOXICOLOGY

Mammalian

Acute Oral LD_{50} Rats	> 5000 mg/kg (males) > 5000 mg/kg (females)
Acute Dermal LD_{50} Rabbit	> 2000 mg/kg (males) > 2000 mg/kg (females)
Acute Inhalation LC_{50} Rats (4 Hour Exposure)	> 2.73 mg/l (males) > 2.73 mg/l (females)
Primary Eye Irritation Rabbits	Minimal Irritation
Primary Dermal Irritation Rabbits	Negative
Dermal Sensitization Male Guinea Pigs	Negative

Avian

Acute Oral LD_{50}	> 2250 mg/kg Northern Bobwhite
Dietary LC_{50}	> 5620 ppm Northern Bobwhite > 5620 ppm Mallard

Aquatic Organisms

96-Hour LC_{50}	3.7 µg/l Rainbow Trout 16 µg/l Bluegill
48-Hour LC_{50}	35 µg/l *Daphnia magna*

Honey Bee

Acute Contact LD_{50}	0.155 µg/bee

FORMULATIONS

Insecticidal Characteristics

Neo-Pynamin has as excellent knockdown activity but not strong killing activity, so it is normally used with other insecticides which have strong killing activity and/or synergists.

Target Insects

Neo-Pynamin is effective against many house and garden pests. This list is representative and is not intended to be complete.

Houseflies	Aphids	Wasps	Spiders
Mosquitoes	Moths	Cockroaches	Ants

Use Patterns

Neo-Pynamin can be used as a water-based or solvent-based formulation for many and varied end-products: pressurized flying insect sprays, liquid flying insect sprays, contact sprays, fogging concentrates, total release foggers, wasp & hornet (jet-stream type) sprays, and pet (either pressurized or pump) sprays. Besides the above, it can also be used in emulsifiable concentrates and dusts.

Compatible Insecticides and Synergists

Neo-Pynamin is compatible with the following pyrethroids, organophosphorus insecticides and synergists: Sumithrin, Gokilaht, Pynamin Forte, Sumithion, MGK 264 and piperonyl butoxide.

Other Ingredients

Neo-Pynamin is widely applicable for many kinds of formulations with special care of the following points: avoid use of alkali and strong oxidizing agents in case of water-based formulations. Care must be taken when formulating with aliphatic hydrocarbon solvents and alcohols as Neo-Pynamin is a solid which has low solubility in such solvents.

SAFE HANDLING

Signal Word

CAUTION

Hazards to Humans and Domestic Animals

Precautionary Statements For Technical Grade Product

Harmful if swallowed, absorbed through skin or inhaled. Avoid skin contact or breathing vapor. Thoroughly wash skin or clothing with soap and water if they become contaminated.

Environmental Hazards

This product is toxic to fish. Do not discharge into lakes, streams, ponds or public waters unless in accordance with an NPDES Permit. For guidance contact your Regional Office of the Environmental Protection Agency.

EMERGENCY AND FIRST AID PROCEDURES

Swallowing: Call a physician or a Poison Control Center. Drink 1-2 glasses of water and and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

Skin: Remove contaminated clothing and wash contact area with soap and water for at least 15 minutes. If irritation persists, get medical attention. Launder clothing before reuse.

Inhalation: If exposure to dust causes irritation or distress, remove subject to fresh air. If breathing is difficult, give oxygen or artificial respiration. If breathing has stopped, give mouth-to-mouth resuscitation. Get immediate medical attention.

Eyes: Flush eyes with plenty of water for at least 15 minutes. If irritation persists, seek medical attention.

For further information contact 1 (800) 424-9300.