

SAFETY DATA SHEET

INOVATE 100 EC

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT : INNOVATE 100 EC INSECTICIDE

USE : Non-systemic insecticide with stomach and contact action. Prevents the sodium channels from functioning, so that no transmission of nerve impulses can take place

COMPANY IDENTIFICATION:

PT. Nufarm Indonesia
Plaza Aminta Suite 802, 8th Floor
Jl. Letjend TB. Simatupang Kav. 10
Jakarta Selatan - 12310

Emergency Phone : - Office Jakarta +62-21-75904844
- Plant +62-254-5750061

Email :

2. HAZARD IDENTIFICATION



Signal: Danger

GHS Hazard Statements

H301 : Toxic if swallowed
H317 : May cause an allergic skin reaction
H319 : Causes serious eye irritation
H331 : Toxic if inhaled
H335 : May cause respiratory irritation
H361 : Suspected of damaging fertility or the unborn child
H372 : Causes damage to organs through prolonged or repeated exposure

- H400 : Very toxic to aquatic life
H410 : Very toxic to aquatic life with long lasting

Precautionary Statement

- P260 : Do not breathe dust/fume/gas/mist/vapors/spray
P261 : Avoid breathing dust/fume/gas/mist/vapors/spray
P264 : Wash thoroughly after handling
P270 : Do not eat, drink or smoke when using this product
P272 : Contaminated work clothing should not be allowed out of the workplace
P273 : Avoid release to the environment
P280 : Wear protective gloves/protective clothing/eye protection/face protection
P281 : Use personal protective equipment as required
P302+P352 : If on skin wash with plenty of water
P304+P340 : If inhaled remove person to fresh air and keep comfortable for breathing
P305+P351+P338 : If in eyes rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing
P330 : Rinse mouth
P363 : Wash contaminated clothing before reuse
P391 : Collect spillage

Storage Precautionary Statements

- P403+233 : Store in a well-ventilated place. Keep container tightly closed
P405 : Store locked up

Disposal Precautionary Statements

- P501 : Dispose of contents/container

Source: European Chemicals Agency (ECHA)

Potential Health Effects

- Eye contact** : Risk of serious damage to eyes.
Skin contact : Harmful if absorbed through the skin. Harmful if absorbed through the skin. The product is irritating.
Ingestion : Toxic if ingested. Do not take internally
Inhalation : Harmful by inhalation.
Potential Environment Effects : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name	: Deltamethrin
Chemical Name	: (S)-alpha-cyano-3-phenoxybenzyl(1R,3R)-3-(2,2-dibromoethenyl)- 2,2- dimethylcyclopropanecarboxylate
Chemical Family	: Pyrethroid
Chemical Formula	: $C_{22}H_{19}Br_2NO_3$
Molecular Weight	: 505.2
Type of formulation	: Emulsifiable Concentrate (EC)

Ingredients	Cas No	Proportion
Deltamethrin	52918-63-5	100 g/l
Inert ingredient	-	up to 1 liter

4. FIRST AID MEASURES

Description of first aid measure

Inhalation	: Move person to fresh air. If person is not breathing call an emergency responder or ambulance, then give artificial respiration, if mouth to mouth use rescuer protection (pocket mask etc)
Skin contact	: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 – 20 minutes. Call a poison control center or doctor for treatment advice
Eye contact	: Hold eyes open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.
Ingestion	: Call a poison control center or doctor immediately for treatment advice. have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person

Indication of immediate medical attention and special treatment needed :

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient

5. FIRE FIGHTING MEASURES

- Fire and explosion hazard** : The product is combustible.
- Extinguishing agents** : Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Contain water used for fire fighting for later disposal.
- Fire fighting** : Remove container from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers but must be contained for later disposal. Avoid inhaling hazardous vapors. Keep upwind.
- Personal protective equipment** : Fire may produce irritating or poisonous vapors (carbon dioxide), vapor or other products of combustion, other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Do not inhale fumes. Ventilate area of spill or leak, especially confined areas. Avoid contact with skin and eyes.
- Environmental precautions** : Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.
- Occupational spill** : Do not allow the product to come in contact with water system.
- Small liquid spills** : Soak up with sand or other suitable noncombustible absorbent material, and place into containers for subsequent disposal.
- Large spills** : Contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

7. HANDLING AND STORAGE

- Handling** : Harmful by inhalation or if swallowed. Avoid contact with eyes and skin, and inhalation of fumes. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal area the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.
- Storage** : Keep under lock and key and out of reach of unauthorized persons, children and animals. Store in its original labeled container in isolated, dry, cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Storage temperature 0 – 30°C.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits	Name	TWA (g/m ³)
	<i>Deltamethrin</i>	<i>0.28</i>

Personal protective equipment

- Respiratory protection** : Wear respirator conforming to EN140 Type A filter.
- Hand Protection** : Wear CE Marked (or equivalent) nitrile rubber gloves (minimum thickness 0,40 mm). Wash when contaminated. Dispose of when contaminated inside, when perforated or when Contamination outside cannot be removed. Wash hands always before eating, drinking, smoking or using the toilet.
- Eye protection** : Chemical resistant goggles must be worn.
- Skin and body protection** : Light protective clothing, PVC
PVC boots
- Hygiene measures** : When using, do not eat, drink or smoke.

Remove soiled clothing immediately.
Remove soaked clothing immediately.
Clean hands and face at work intervals and after work.
Work in an adequately ventilated room.

9. PHYSICAL AND CHEMICAL PROPERTIES

Apperance	: Light yellow liquid
Solubility in water	: Emulsifiable
Flammability	: Combustible, Nufarm Indonesia (by Sucofindo)
Flash Point	: 70°C Nufarm Indonesia (by Sucofindo)
Specific Gravity	: 0.947 (at 20°C)
Vapour Pressure	: 1.24×10^{-5} mPa @ 25oC for deltamethrin
pH 1% (w/v) H₂O	: 4,5 - 7.5 Nufarm Indonesia (adopsi FAO)
Partition co-efficient	: K_{ow} Log P is 4.6 for deltamethrin

10. STABILITY AND REACTIVITY

Stability	: Stable at normal temperatures and storage conditions.
Hazardous Reactions	: No hazardous reactions when stored and handled according to prescribed instructions.
Incompatibility	: Compatible with many insecticides, fungicides and acaricides, but incompatible with alkaline substances
Chemical Dangers	: Decomposition above 300°C this produces toxic fumes including Hydrogen cyanida and hydrogen bromide.

11. TOXICOLOGICAL INFORMATION

Data on deltamethrin technical

Acute oral LD₅₀ (rats)	: 135 g/kg
Acute dermal LD₅₀ (rabbit)	: 2000 mg/kg
Acute inhalation (rats)	: 2.2 mg/L air (4hr)
Eye irritation (rabbit)	: Category III, irritant

- Skin irritation (rabbit)** : Mild irritant
- Mutagenicity** : Non mutagenic and non teratogenic (mice, rats, rabbits)
- Chronic effect** : Deltamethrin caused neurobehavioral in chronic toxicity studies in rats and dog
- Further information** : Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours). When inhaled in larger quantities, the solvent vapours cause a narcotic effect.

12. ECOLOGICAL INFORMATION

- Acute Toxicity – Fish** : The following data is for active ingredient Deltamethrin
LC₅₀ (96 hr) rainbow trout 0.91 µg/l
LC₅₀ (96 hr) bluegill sunfish 1.4 µg/l
Not toxic to fish under natural conditions
- Acute Toxicity – Daphnia** : LC₅₀ (48 hr) Daphnia magna 3.5 µg/l
EC₅₀ (96 hr) for Selenastrum capricornutum > 9.1 mg/l
- Birds**
LD₅₀ Acute Oral Mallard duck > 4640 mg/l
LC₅₀ (8 d) Dietary for Mallard duck 8039 mg/kg diet
LC₅₀ (8 d) Japanese Quail > 5620 mg/kg diet
- Bee**
LD₅₀ (oral) Bee 79 ng/bee
LD₅₀ (contact) Bee 51 ng/bee
- Worms** LC₅₀ (14 d) for earthworms > 1290 mg/kg soil
- Persistence / Degradability** : DT₅₀ < 23 d, in field
- Other Precautions** : DO NOT contaminate dams, rivers or stream with pesticide or used Containers

13. DISPOSAL CONSIDERATIONS

WASTE disposal information : Do not reuse empty unless they are specifically to be re-filled. Empty container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. Dispose of empty containers in accordance with local regulation.

Product Disposal : On site disposal of the concentrated product is not acceptable.
Ideally the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities that hold periodic collection of unwanted chemicals.

14. TRANSPORT INFORMATION

ADR/RID/ADNR

UN-No **3351**

Labels 6.1 (3)

Packaging group III

Hazard no. 63

Description of the goods UN 3351 PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE

(DELTAMETHRIN, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)

IMDG

UN-No **3351**

Class 6.1

Packaging group III

EmS F-E , S-D

Marine pollutant Marine pollutant

Description of the goods PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE (DELTAMETHRIN, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)

IATA

UN-No **3351**

Class 6.1

Packaging group III

Description of the goods PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE (DELTAMETHRIN, SOLVENT NAPHTHA (PETROLEUM) LIGHT AROMATIC SOLUTION)

15. REGULATIONS

Classification : Labelling according to EEC Directive

Hazardous components which must be listed on the label:

- Deltamethrin
- Solvent Naphtha (petroleum), light aromatic

Symbol(s) : Xn Harmful
N Dangerous for the environment
R 20/22 Harmful by inhalation
R 36/37 Irritating to eyes and respiratory system

R 43 May cause sensitization by skin contact

R 51 Toxic to aquatic organisms

R 57 Toxic to bees

Safety phrases(s)

S 1/2 Keep locked up and out reach children

S 13 Keep away from food, drink and animal feedingstuffs

S 16 Keep away from source of ignition - no smoking

S 23 Do not breathe vapour/spray

S 24/25 Avoid contact with skin and eyes

S 36/37/39 Wear suitable protective clothing, gloves and eye/face Protection

16. OTHER INFORMATION

The information on this sheet is not a specification, it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.

Reference

- **Pub Chem**, Deltamethrin, US National Library of Medicine. National Center for Biotechnology Information

17. REVISION LOG

No.	Revision Date	Description	Revised By:
00	29 May 2015	New MSDS	Erwin P. Tanjung
01	25 October 2018	Simbol, GHS Hazard Statement	Erwin P. Tanjung
02	25 April 2019	Berubah MSDS jadi SDS	Erwin P. Tanjung