

1: IDENTIFICATION

Chemical Name	Chlorothalonil: 2,4,5,6-tetrachlorobenzene-1,3-dicarbonitrile Difenoconazole: 1-[[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-1,2,4-triazole	Trade Name	NOYAN FLO
Synonyms	Chlorothalonil 40.0% w/w + Difenoconazole 4.0 w/w SC	Molecular Formula	$C_{19}Cl_4N_2 + C_{19}H_{17}Cl_2N_5O_3$
Uses	Fungicide		
Manufacturer/Supplier	Ulink AgriTech Pvt. Ltd. Office Nos. 001 And 002, Ground Floor Wing "A" And Nos. 003 And 004 Ground Floor Wing "B", Nyati Tech Park, Wadgaon Sheri, Pune - 411014, Maharashtra		
Emergency Contact	9503095030	E-mail	info@agrostar.in

2: COMPOSITION/INFORMATION OF INGREDIENTS

Chemical Name	CAS #	Percent or Content (w/w)
chlorothalonil (ISO)	1897-45-6	40 % w/w
difenoconazole	119446-68-3	4.0 % w/w

3: HAZARD IDENTIFICATION

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989

Classification: Highly Toxic

GHS Classification	Acute toxicity (Oral) : Category 4 Skin sensitisation : Category 1 Short-term (acute) aquatic hazard : Category 1	Acute toxicity (Inhalation) : Category 2 Carcinogenicity : Category 2	Serious eye damage/eye irritation: Category 2B Specific target organ toxicity - single exposure : Category 3 (Respiratory system) Long-term (chronic) aquatic hazard : Category 1
Label Elements :	Pictogram: GHS06, GHS08, GHS09	Signal Word: Danger	
Hazard Statement:	H302 Harmful if swallowed. H317: May cause an allergic skin reaction. H335 May cause respiratory irritation.	H320 Causes eye irritation. H330 Fatal if inhaled. H351 Suspected of causing cancer.	H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s): P201, P202, P260, P264, P270, P271, P272, P273, P280, P284, P301 + P312 + P330, P302 + P352, P304 + P340 + P310, P305 + P351 + P338, P308 + P313, P333 + P313, P337 + P313, P362 + P364, P391, P403 + P233, P405, P501

Other hazards which do not result in classification: None known.

4: FIRST AID MEASURES

General: Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.

Inhalation: Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or poison control centre immediately.

Ingestion: Do NOT induce vomiting. If swallowed, seek medical advice immediately and show this container or label.

Skin Contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

Eye Contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Note to physician: No specific Antidote. Treat symptomatically

Most important symptoms and effects, both acute and delayed : Nonspecific; No symptoms known or expected.

5: FIRE FIGHTING MEASURES

Extinguishing Media: For small fires Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. For Large fires Alcohol-resistant foam or Water spray

Unsuitable Extinguishing Media: Do not use a solid water stream as it may scatter and spread fire.

Hazardous Thermal (de)composition: As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health

Specific Extinguishing Methods : Do not allow run-off from fire fighting to enter drains or water courses. Cool closed

Special Procedures: Fire fighters should wear full protective clothing and self-contained breathing apparatus. Contain the spread of the fire-fighting media. Do not allow run-off from firefighting to enter drains or water courses.

Protection of Fire Fighters: Wear self-contained breathing apparatus for firefighting if necessary.

6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Refer to protective measures listed in sections 7 and 8.

Environmental Precaution: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for Cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

7: HANDLING & STORAGE

Handling: No special protective measures against fire required. Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see section 8.

Storage: No special storage conditions required. Keep containers tightly closed in a dry, cool and wellventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedings.

8: EXPOSURE CONTROL/PERSONAL PROTECTION

Control Parameters: Chlorothalonil (ISO): 0.1 mg/m³ Difenoconazole: 5 mg/m³

Engineering Measures: Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. Maintain air concentrations below occupational exposure standards. Where necessary, seek additional occupational hygiene advice.

General Protection: Avoid contact with eyes and skin. While handling the product wear cotton overalls buttoned to the neck and wrist. Elbow-length PVC gloves and face shield. After use and before eating, drinking and smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves and contaminated clothing.

Personal Protection: Follow all precautions and instructions on the label. In all other cases the following recommendations would apply.

Respiratory Protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Suitable respiratory equipment: Respirator with a half face mask The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, selfcontained breathing apparatus must be used.

Hand Protection: Material : Nitrile rubber

Break through time : > 480 min

Glove thickness : 0.5 mm

Wear protective gloves suitable for the task. Follow the glove supplier's instructions on permeability and breakthrough time. Consider local working conditions such as cuts, abrasion, and contact duration.

Replace gloves immediately if signs of degradation or chemical penetration are observed.

Skin Protection: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Remove and wash contaminated clothing before re-use. Wear as appropriate: Impervious clothing

Eye Protection: Tightly fitting safety goggles. Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

Protective measures: The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

9: PHYSICAL/CHEMICAL PROPERTIES

Appearance: Viscous, mobile **Colour:** White to off-white **Odour:** like alcohol, weak **Ignition Temperature:** The product is not self-ignitable.
Water solubility: Not data available **pH (1% aq. Sol.):** 4 - 8 **Flammability:** Not data available **Auto-ignition temperature :** > 650 °C **Density :** 1.25 g/cm3 (25 °C)

10: STABILITY & REACTIVITY

Stability: Stable under normal conditions. **Reactivity:** None reasonably foreseeable.
Hazardous decomposition products: No hazardous decomposition products are known **Incompatible Materials:** None known
Conditions to avoid: No decomposition if used as directed.
Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure: Ingestion, Inhalation, Skin contact, Eye contact

Acute toxicity: **Product:** Acute oral toxicity : LD50(Rat, female): 1,958 mg/kg

Acute inhalation toxicity : LC50(Rat, male): > 0.32 - 0.61 mg/l Exposure time: 4 h; Test atmosphere: dust/mist

Acute dermal toxicity : LD50(Rat, male and female): > 5,050 mg/kg

Components: chlorothalonil (ISO): Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): 0.10 mg/l; Exposure time: 4 h; Test atmosphere: dust/mist

difenoconazole: Acute oral toxicity : LD50 (Rat, male and female): 1,453 mg/kg

Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): > 3,300 mg/m3

Exposure time: 4 h; Test atmosphere: dust/mist

Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,010 mg/kg

Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation: No skin irritation (Rabbit)

Serious eye damage/eye irritation: Irritation to eyes, reversing within 7 days (Rabbit)

Respiratory or skin sensitisation: May cause sensitisation by skin contact.

Reproductive toxicity chlorothalonil (ISO) & difenoconazole: No toxicity to reproduction

Germ cell mutagenicity (chlorothalonil (ISO) & difenoconazole): Animal testing did not show any mutagenic effects

STOT - single exposure: chlorothalonil (ISO) Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Repeated dose toxicity chlorothalonil (ISO) Remarks : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

difenoconazole Remarks : No adverse effect has been observed in chronic toxicity tests.

12: ECOLOGICAL INFORMATION

Ecotoxicity **Product:** LC50 (Oncorhynchus mykiss (rainbow trout)): 0.123 mg/l ; Exposure time: 96 h EC50 (Daphnia magna (Water flea)): 0.16 mg/l; Exposure time: 48 h

ErC50 (Raphidocelis subcapitata (freshwater green alga)): 2.5 mg/l; Exposure time: 72 h

NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.1 mg/l ; End point: Growth rate; Exposure time: 72 h

Persistence and degradability **Components:** chlorothalonil (ISO): Stability in water : Degradation half life: < 5 d (20 °C) Remarks: Product is not persistent.

difenoconazole: Biodegradability : Result: Not readily biodegradable.; Stability in water : Degradation half life: 1 d ; Remarks: Product is not persistent.

Bioaccumulative potential **Components:** chlorothalonil (ISO): Bioaccumulation : Remarks: Low bioaccumulation potential.

Partition coefficient: octanol/ water : log Pow: 2.94 (25 °C)

difenoconazole: Bioaccumulation : Remarks: High bioaccumulation potential.

Partition coefficient: n- : log Pow: 4.4 (25 °C) octanol/water

Mobility in soil Chlorothalonil has low to slight mobility in soil.

Stability in soil : Dissipation time: 7 d; Percentage dissipation: 50 % (DT50); Remarks: Product is not persistent

Difenoconazole has Low mobility in soil.

Stability in soil : Dissipation time: 149 - 187 d; Percentage dissipation: 50 % (DT50); Remarks: Product is not persistent.

Other adverse effects This substance is not considered to be very persistent and very bioaccumulating (vPvB). This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

13: DISPOSAL CONSIDERATION

Waste-disposal Procedures: Waste from residues : Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Empty remaining contents. Triple rinse containers. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

14: TRANSPORT INFORMATION

UN No. 3082 **Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIFENOCONAZOLE AND CHLOROTHALONIL)

Land Transport (ADR/RID): Class-9, Packing Group-III, Labels - 9, Environmental hazards - Yes

Sea Transport (IMO) (IMDG): Class-9, Packing group-III, Labels-9 Marine Pollutant-Yes, EmS Code : F-A, S-F

Air Transport (IATA): Class-9, Packing group-III, Labels - Miscellaneous Environmental hazards -Yes

Transport in bulk according to IMO instruments : Not applicable for product as supplied.

Special precautions for user : The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture: None known.

16: OTHER INFORMATION

DISCLAIMER OF LIABILITY The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

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